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Mental States Peculiarities of Students Proclivity for Drug Addiction

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Abstract

Tendency to drug addiction has an adverse effect on success of socialization and personal and professional students' formation. There is a risk of proclivity development for addiction, for a disease that can lead to full degradation of the personality. One of the reasons of drug addiction is students' being unable to manage their mental states. The features of mental students' conditions of drug addictionproclivity, the features of their dominating states and a relief of mental states were studied in the research in order to learn the statistical analysis of distinction of reliability of average values. So the correlation analysis was carried out. Data were processed by the program of statistical data processing of SPSS 22.0. It is established that expressiveness of all mental states among students with high tendency to drug addiction is weaker, though negative states are expressed more strongly. Tendency to drug addiction among students is caused by stronger expressiveness of the mental states connected with experiences, and by weaker expressiveness of the mental states connected with physiological reactions. The data obtained during research will allow the correcting of the psychology and pedagogical programs directed at level tendency decrease to drug addiction among students taking into account the features of their mental states.

Keywords: *mental states; dominating states; relief of mental states; proclivity for drug addiction; students.*

1. Introduction

The mental state unlike such concepts as "mental process", characterizing dynamic manifestations of mentality, or "mental property" which on the contrary, indicates stability of its manifestations, is used for conditional allocation in mentality of the individual of rather static moment in psychology (Ldokova, 2006). In other words, the psychological state is defined as the steady characteristic in a certain period of person's mental activity.

Also it is necessary to emphasize that, as a rule, mental states are jet states, that is a certain system of responses to certain behavioral or any other situation. And thus all mental states that differ from individual traits are the current

modification of any person's mentality. (Prokhorov, 2004).

The addicted person differs from prevalence of negative mental states which are forced out or replaced by the changed states in the course of acts of addicted behavior for the improvement of the common person's state. The following features of mental states are inherent in an addicted person: the raised level of a stress and low resilience to it, the raised level of aggression and frustration (Ludwig, 2012).

Students, both in the course of educational activity and in everyday life are influenced by various stressful factors that negatively impact their mental state and can lead to addiction actualizing of the person. It can be shown in drug addiction.

Studying students' mental states and their proclivity for drug addiction allow the revealing of their features which become targets for further psychological work on their correction to decrease the level of tendency to their drug addiction.

2. Material and Methods

Object of research: students with different level of tendency to drug addiction.

Object of research: the features of mental states that cause drug addiction.

Research problems: to carry out the theoretical analysis of scientific literature on a problem of mental states among students inclined to drug addiction; to do empirical research using the corresponding means among students for detection of features of the mental states influencing formation of tendency to drug addiction.

30 students of the Kazan (Volga) Federal University, Kazan; 32 students of the Kazan National Research Technological University, Kazan and 35 students of Naberezhnye Chelny Branch of the Institute of Economics, Management and Law, Naberezhnye Chelny took part in the empirical research.

Research was done with the following techniques:

1. Technique of definition of the dominating state, directed at definition of characteristics of moods and some other characteristics of personal level of mental states by means of value judgment surveyed (Sandpipers, 2003).
2. Technique "A relief of a mental state" (Prokhorov, 2004) for identification of the main parties of a mental state: mental processes, physiological reactions, experiences and behavior.
3. Technique of definition of mental states (Prokhorov, 2004), directed at the identification of degree of expressiveness of positive and negative mental states.
4. The questionnaire "Susceptibility to addiction" (Cheverikina and Gryaznov, 2012) to identify the students at risk of drug abuse.

3. Results

Average values of defining technique of a dominating state among students with different level of tendency to drug addiction are presented in table 1.

Table 1. Average values and results of T-criterion of Student on a technique of definition of a dominating state at students with low and high level of tendency to drug addiction

	Low Level of Tendency to Drug Addiction	High Level of Tendency to Drug Addiction	T-criterion for Equality of Average	
			t	Two- sided meaning
Activity- passivity	32	33,28	0,485	0,631
Vigor-despondency	25	23,78	-0,632	0,531
Vitality (high-low)	27,14	24,72	-0,838	0,407
Relaxedness-strain	24,57	24,56	-0,005	0,996
Tranquility-anxiety	24,67	25,06	0,124	0,902
Stability-instability of emotions	26,47	24	-0,766	0,448
Satisfaction-dissatisfaction with life	31,38	29,56	-0,576	0,568
Positive-negative image of oneself	22,57	17,61	-2,928	0,006*

* - differences of average are reliable at level p≤0,01

Students with high tendency to drug addiction have indicators on scales vigor-despondency; stability-instability of emotions, satisfaction-dissatisfaction with life and a positive-negative way of living is lower, than students with low and

average tendency. They have a lowered, sad mood, despondency, the negative emotional background prevails. Students with high tendency to drug addiction are inclined to disappointment with a course of events, narrowing of interests; they see future in gloomy tone, the sense of the future isn't clear for them. Emotional stability is reduced, they get into emotional excitement easily, their mood is changeable, their irritability is increased and negative emotional tone prevails. Dissatisfaction with life as a whole, its course, process of self-realization and subjects develops the main vital events. They have low estimate of personal success. A person hasn't find himself completely, is reserved, hasn't felt reliable internal support, hasn't an ability to find truthful answers. Leaving in doubts which allows evading from need to make a vital choice is often characteristic for the person who is listening first of all to himself, assuming responsibility that happens to him. Students with high tendency to alcoholism have low extent of acceptance of negative attitude especially to themselves as well. But on a scale of activity- passivity they on the contrary have higher indicators than students with the low and average level of tendencies to drug addiction. So they have inherent expressed active, optimistic relation to a life situation, a readiness for overcoming obstacles, belief in the opportunities. They have power to overcome the obstacles and achieve the purposes. Their vigor is higher, than the majority of people have.

Therefore, it is possible to draw a conclusion that the tendency of students with drug addiction is expressed in the following dominating mental states: despondency, negative emotional background, decrease in emotional stability, low satisfaction with life and the achievements, leaving in doubts and a negative way of living.

Average values on scales of diagnostics technique of mental conditions among students with different level of tendency to drug addiction are presented in table 2.

Table 2. Average values and results of T-criterion of Student on a technique of definition of mental state among students with low and high level of tendency to drug addiction

	Low Level of Tendency to Drug Addictiony	High Level of Tendency to Drug Addiction	T-criterion for Equality of Average Values	
				Two-sided Meaning
Positive states of activity	52,07	45,73	-3,403	0,002*
Negative states of activity	51,74	47,47	-0,703	0,487
Positive states of communication	52,85	47,37	-4,332	0,000*
Negative states of communication	50,52	48,49	-0,215	0,831
Positive attitude to others	49,30	46,57	-1,736	0,092
Negative attitude to others	53,25	48,69	-0,637	0,528
Positive psycho-physiological states	53,35	46,28	-5,264	0,000*
Negative psycho-physiological states	49,61	51,85	-0,230	0,819
Positive emotional states	53,08	45,48	-3,200	0,003*
Negative emotional states	51,05	46,48	-0,156	0,877
Positive determined states	49,46	46,75	-0,939	0,354
Negative determined states	53,86	47,64	-0,450	0,655
Positive intelligent states	50,16	48,88	-2,082	0,045**
Negative intelligent states	53,12	49,60	-1,110	0,275

* - differences of average are reliable at level p≤0,01

** - differences of average are reliable at level p≤0,05

Students with high tendency to drug addiction are observed to have the following features: they have lower general background of expressiveness of mental states than teenagers with low tendency. But at the same time they are not observed to have a strong difference between expressiveness of negative and positive mental states though indicators on negative mental states are a little higher. Negative psycho-physiological states among students with high tendency to drug addiction obviously expressed peak on a scale is observed in a profile of mental states.

Therefore, it is possible to draw a conclusion that students with high tendency to drug addiction have weaker expressiveness of all mental states, thus negative states are expressed more strongly. Negative psycho-physiological states are strongly expressed among teenagers with high tendency to drug addiction.

Average values on integrated indicators of a technique "A relief of mental states" among students with different level of tendency to drug addiction are presented in table 3.

Table 3. Average values and results of T-criterion of Student on a technique of definition of a relief of mental states among students with low and high level of tendency to drug addiction

			T-criterion for Equality of Average Values	
	Low Level of Tendency to Drug Addiction	High Level of Tendency to Drug Addiction		Two-sided Meaning
Psyche States	83,72	70,09	0,070	0,945
Physiological Reactions	74,17	68	-0,756	0,461
Emotions	79,33	74,52	-0,786	0,443
Behavior	87,5	70	1,624	0,124

All mental states are expressed more weakly among students with high level of tendency to drug addiction than among teenagers with low level of tendencies. But the indicators of mental states connected with experiences are higher in their profile, and the indicators connected with physiological reactions are lower than indicators of other mental states.

Therefore, it is possible to draw a conclusion that tendency to drug addiction among students is caused by stronger expressiveness of the mental states connected with experiences, and weaker expressiveness of the mental states connected with physiological reactions.

We have carried out the correlation analysis of the obtained data for specification of interrelation of mental states and tendency to drug addiction among students. Its results are presented in table 4.

Table 4. Results of the correlation analysis of interrelation of mental states and tendency to drug addiction among students

Mental States	**Tendency to Drug Addiction**
Activity-passivity	0,047
Vigor-despondency	-0,003
Vitality (high-low)	0,104
Relaxedness-strain	0,072
Tranquility-anxiety	0,021
Stability-instability	0,086
Satisfaction-dissatisfaction with life	0,048
Positive-negative image of oneself	0,317**
Positive states of activity	0,134
Negative states of activity	0,128
Positive states of communication	0,171
Negative states of communication	0,057
Positive attitude to others	-0,081
Negative attitude to others	0,131
Positive psycho-physiological states	-0,269**
Negative psycho-physiological states	-0,010
Positive emotional states	0,165
Negative emotional states	0,091
Positive determined states	0,047
Negative determined states	0,159
Positive intelligent states	-0,024
Negative intelligent states	0,119
Psyche processes	-0,206
Physiological reactions	-0,168
Emotions	0,018
Behavior	-0,340*
**. Correlation is significant at level 0,01 (two-sided).	
*. Correlation is significant at level 0,05 (two-sided).	

The carried-out correlation analysis confirmed the link of tendency to drug addiction with the mental states caused by negative attitude itself. It is established that tendency to drug addiction is connected with such conditions of mental

processes, as figurativeness of representations, thinking and attention. Students with high tendency to drug addiction have worse physiological reactions such as muscular tone and sweating. Commitment, reasonableness, control, adequacy and stability decrease in the behavioral sphere. In a whole tendency to drug addiction is connected with deterioration of the mental states connected with behavior.

4. Discussions

The drug addiction problem is actively studied recently by foreign scientists in the different directions. Motives of involvement of young people who take drugs and a role of psychologists-consultants in decreasing risk of drug addiction formation (Chado, 2014) are considered. Psychosocial aspects of drug addiction formation and influence of life skills on efficiency of the self-help of the youth inclined to drug addiction (to Golestan, Namayandeh, Anjomshoa, 2011) are studied. It is claimed that training of life skills and formation of social competence reduce risk of recurrence of drug addiction treatment among teenagers and young people.

In Russian psychology the problem of drug addiction and the connected with it psychological and social violations are also widely studied. So, much attention is paid to studying social and psychological reasons and drug addiction consequences (Gryaznov, 2005), social and psychological features of the students inclined to drug addiction and alcoholism (Cheverikina et al, 2015), interrelations of tendency to drug addiction with aggressiveness among students (Gerasimova V. V., 2013). Psychological features of prevention of drug addiction in the young people surroundings (Garifullin, 2009), the organization of anti-narcotic work in a student's hostel (Kuznetsova, Faskhutdinov, 2006) were studied. The separate attention was paid to studying of the I-concept of drug addicts (Khusainova, Rakhimov, 2006). Attempts of the forecast of mental conditions of people with opium drug addiction (Korobeynikova, 2005), etc. were made.

But, in spite of the fact that problems of drug addiction are studied quite widely, researches of features of mental states among students inclined to drug addiction, wasn't carried out.

5. Conclusion

High tendency to drug addiction is expressed in the following dominating mental states among students: despondency, negative emotional background, decrease in emotional stability, low satisfaction with life and the achievements, leaving in doubts and a negative image of themselves.

Negative psycho-physiological states among students with high tendency to drug addiction are strongly expressed.

As it is established that students with low and high tendency to drug addiction have positive reliable distinctions of average values on scales positive activity states, positive conditions of communication, positive physiological states, positive states and positive intellectual states, teenagers with high tendency to drug addiction all these psychological states are expressed much lower and have negative character.

The carried-out correlation analysis confirmed the link of tendency to drug addiction with the mental states caused by negative attitude itself. Tendency to drug addiction increases at decrease in psycho-physiological states. In a whole tendency to drug addiction is connected with deterioration of mental states connected with behavior.

6. Recommendation

The revealed features of mental conditions of students with high tendency to drug addiction have to be considered when developing the anti-narcotic psychology and pedagogical programs directed at decrease in level of tendency to drug addiction among students. For minimization of risk of students' involvement in taking drugs, it is important to teach them to operate the mental state in various stressful situations, to change negative states for positive, without resorting to the help of psychoactive agents**.**

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Principles of Professionally-Motivating Training of Students Majoring in "Tourism" and the Rules For Their Implementation in Practice

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Abstract

The need to study this problem stems from the fact that in a competitive tourism business the problem of competent, professionally-motivated personnel training is actualized for the implementation of this type of activity in modern conditions. To solve this problem in practice, it is necessary to investigate its theoretical foundations. In this context, this paper presents the rationale for the principles of professionally-motivating training of students majoring in "Tourism", and also proposes the rules to implement them in practice. The article contents are valuable both in theoretical and practical terms for university faculty members that train students majoring in "Tourism".

Keywords: *professionally-motivating training; principles; students; tourism; practice.*

1. Introduction

Tourism currently is one of the most rapidly developing sectors of the economy. Travel business in many cases is the initiator and the experimenter in the development and implementation of advanced modern technologies, continually changing the forms and ways of offer and provision of services. In tourism most various innovations are daily introduced under the influence of scientific-technical progress and intellectual development of mankind. Innovation in tourism – is the most important phenomenon contributing to the development of tourism worldwide (Lisitzina et al., 2015; Ilkevich & Ilkevich, 2013).

A modern tourism specialist should have a good understanding of the innovation processes and skillfully integrate them into his activities. Therefore, the tourism market, which is characterized by a particularly fierce competition, requires highly qualified human resourses, able to adapt to rapidly changing conditions. Ensuring availability of professional education throughout life is the only way of arming people with knowledge and skills, to keep pace with the change of fleeting technologies. The content of professional tourism education should be aimed primarily at a positive change in the

lives of young people and should guarantee them employment and effective career (Zorin, 2005; Lisitzina et al., 2015).

This task is achievable through strengthening the professional-motivating component of training students majoring in "Tourism".

2. Literature Review

In the works of E.P.Ilyin (2002, 2004), M.I.Alekseeva (1990), L.I.Bozhovich (1996), Yu.I.Leonavichus (1975), M.V.Matyukhina (1983), Yu.M.Orlova (1982), V.Hennig (1998), P.M. Jacobson (1998) et al., there are classifications of learning motives, differing both by the number of motives and their qualitative composition. The publications show that, despite the differences in the classifications of motives for learning, all their diversity can be divided into two types − the cognitive and the social.

The effectiveness of learning in a very large extent depends on the content and strength of motivation for learning. In particular, I.P.Podlasy emphasizes that the motivation – is the main factor of success in the educational process. Many psychologists argue that students' successes by about 70% are definitely due to the motivation; the remaining 30% are students' abilities (Podlasyy, 2000).

As it is known, one of the main tasks of education – is the formation of such motivational sphere of each person, which would adequately reflect social relations, and the hierarchy of motives would be determined by a harmonious combination of public and individual requirements, when a person wants what is necessary for the society (B.I.Fedorov & L.M. Perminov (2000), A.S. Makarenko (1992), B.F. Lomov (1984), S.L. Rubinstein (1997)).

Analysis of the survey data allows concluding that the formation of cognitive and professional motivation − is a long process associated with the development of an individual student as a whole, and the transition to a person-focused, truly humane education of students is very difficult in real teaching practice.

3. Methodological Framework

The methodological framework in identifying and substantiating the principles of professionally-motivating training of students majoring in "Tourism" consisted in the following provisions.

Formation of professional motivation in training students in the field of tourism is the upbringing and developing: the abilities to set goals for activities and analyze the results; activity and reasonable initiatives aimed at fulfilling obligations; pride in their preparedness, awareness of its high social and personal value; willingness to endure extreme mental and physical exertion; desire to know the requirements of guidance documents; striving to master the content of the training (Ivanov et al., 2015; Shaidullina et al., 2015; Khairullina et al., 2015).

The range of purposes of the professionally-motivating stage of training students majoring in "Tourism" is as follows: to form elements, features of professional motivation of higher levels; ensure mutual transformation of professional motivation and overall motivation of the student; develop a desire for independent learning activities; raise the need for tourist work, focus on the acquired psychophysical qualities as vital for the state (society) and the personality, and so on (Lisitzina et al., 2015).

The objectives of tourism activities on the formation of general and professional motivation include: to cause the students' surprise by an unusual form of event; attract students to assessing and self-assessing their activities; update the professional and general motives by analyzing work-related and life situations; associate general developmental with the professional aspects of the tasks; strengthen professional skills, ensuring the proficiency; provide an opportunity to act independently, engage in collaborative forms of training in the tourism sector; ensure reinforcement of the excited motivational states at past events, to form the focus of the motivation on specific professional activities, and others.

4. Results and Discussions

4.1 Status of the principles of professionally-motivating training of students majoring in "Tourism"

The principles of professionally-motivating training reflect the laws, the regularities and objectives of professionally-motivating student learning. Consideration of the connections and relationships between the identified principles of professionally-motivating training and the well-known general pedagogical (general methodological) principles of professional education shows that the implementation of one principle is impossible without the others and all together they function and reflect the main features of the student training structure in the field of tourism, which has a professionally-motivating orientation. At that, the principles of professionally-motivating training of students majoring in

"Tourism" do not duplicate the general methodological principles known, and the need for their introduction is confirmed by not only the needs of the teaching practice itself, but also by the conducted theoretical studies in the field of psychology and pedagogy. The system, including the known and newly formulated principles, gives the teacher a set of instructions (from goal-setting to the results analysis) for organizing the professionally-motivating training of students in groups.

During the research the following principles of professionally-motivating training (PMT) of students majoring in "Tourism" were formulated: the principle of compliance of the training content in the field of tourism in all its elements and at all levels of the designing with the common and disciplinary PMT objectives; the principle of unity of the content and the procedural sides of professional activity; the principle of structural unity of the PMT content at all levels of its formation; the principle of the PMT content focus on implementing the requirements of the qualification profile; the principle of the PMT content correspondence with the content of the main types of a specialist's professional activity.

4.2 The nature and content of the principles of professionally-motivating training of students majoring in "Tourism"

The principles of professionally-motivating training of students majoring in "Tourism" are aimed at resolving the following contradictions: between the existing level of professional motives development and the necessary one; between personally and publicly (socially) significant values, needs, goals, interests, et cetera; between the existing motivational attitudes and the functional capabilities of the student.

4.2.1 The principle of the content compliance with the objectives of professionally-motivating training of students majoring in "Tourism"

This principle provides for the inclusion in the learning content, except of the traditionally allocated elements (knowledge, abilities, and skills) also those which, in accordance with the personality-based, motivational-value PMT orientation reflect the experience of the creative professional activity and personal attitude to the state, public and universal values. In this case, the priority element of the content is the experience of the emotional-value relation, and the priority types of tourist activities – are the cognitive and the value-oriented. Compliance with this principle requires the implementation in the content-related and procedural PMT aspects of the following ideas: the priority of state (public) interests over personal; priority of the creative over the reproductive, of the valuable over the informational; humanistic orientation as opposed to totalitarian-authoritarian. All these ideas should be considered in the context of forming PM − a personality trait, allowing to consider physical training as public, social and personal value, to ensure unity of the physical training purposes, "center-of-gravity" shift on the emotional and social development of the student.

4.2.2 The principle of the content-related and procedural unity of professionally-motivating training of students majoring in "Tourism"

This principle reflects the position of the training experiences in the field of tourism in relation to the theoretical analysis and the composition of its content. It suggests awareness of the teaching reality related to carrying out training in the tourism sector in a particular group, outside of which there cannot exist the training content in the area of tourism. In the curriculums, in teaching aids there should be not only the actual PMT content stated, but also the ways of conveying to students and of their mastering the content. The importance of fulfilling this principle during the tourist activity is due to the fact that the content, methods of updating the tasks performance, the state of the motivational sphere of the actors contribute to the procedural side of the student's motivation, because it is aimed at forming situational motives defined by confluence of external circumstances. Meanwhile, it is known, that only in the case of permanent formation of procedural motivation a discrete-qualitative change across the motivational sphere of the student may occur.

4.2.3 The principle of structural integrity of the tourist activity content

The implementation of this principle makes it possible to coordinate and systematize the elements of the PMT content levels. The structural content integrity is maintained when moving from the theoretical levels to the concrete realization of the PMT process. The content cannot be considered as a sum of the generated independently of each other standards, programs, textbooks and manuals, et cetera. As early as at the beginning of their compilation, they must comply with the general idea of the structure, composition and patterns of professionally-motivating college education. This will ensure a unified approach to all teaching and learning materials and their use in tourist work.

4.2.4 The principle of the content focus of professionally-motivating training of students majoring in "Tourism" on the implementation of the qualification profile requirements

This principle emphasizes the necessity for continuous use of a specialist's qualifications as a criterion for the content of training in the field of tourism.

4.2.5 The principle of the professionally-motivating training of students majoring in "Tourism" content correspondence with the content of the main types of the specialist's professional activity according to the training profile

This principle points to the need of forming students' general focus and the motives of mastering a particular profession. However, the motivating function of the tourist work content will be implemented only if the motives of general and professional training are not alternative in motivational training of students in the field of tourism, since a teacher's activity is multifaceted and requires a wide range of knowledge and skills.

4.3 The rules for implementing the principles of professionally-motivating training of students majoring in "Tourism"

a) **when executing the first rule** it is necessary to remember that each student majoring in "Tourism" is characterized by varying degrees of general and professional tourist activity motives formation, and the complexity of the teacher's work is that he is faced with many alternatives. What motivation features are necessary to be formed in the first place? What goals of education will be relevant in this group ? How much is general and professional motivation of different students developed ? To set the goals, choose the methods and means of training in the field of tourism the teacher must know the levels of students' professional motivation formation.

b) **when implementing the second rule** it is necessary to remember that the identification of levels of motivation development is necessary in order to pedagogically reasonably implement a program of upbringing and developing the motivational sphere of students. Knowledge of the levels of motivation development allows not only to record the state of development of socio-psychological qualities of future specialists, but also to set goals of professionally-motivating training in tourism in sequence, providing constant reinforcement and shaping the motives, goals and needs that are the basis for the professional component of the next level tourist motivation.

So, if in a group the majority of the students belong to the first level of professional motivation development in the tourism sector, then the objectives of its formation must be associated primarily with the development of subject-oriented training in tourism field: to inspire by interesting facts, historical examples, to cause the desire to perform simple tasks, to excite the interest for professionally significant elements of training in the tourism sector, to demonstrate the value and necessity of training. It is necessary to excite students' interest in the upcoming tourist activity, to actualize the needs in comprehensive development. The main objective of the transformation is to enrich the content of motivation, the formation of personal and socially-significant training motives, professional needs and aspirations for work in tourism. The main goal of professional motivation formation of the second level students is to develop professional activity motives, to transform common training motives in the field of tourism into professional ones, to form the national and publicly-important motives of improving skills. In this case, more widely projected is the development of the moral content of motivation, focus on mastering the skills of tourist activity. The tasks of educating students in the third level are to develop their ability to set goals of upcoming educational and career-related activities, to enhance interest in general developmental and professional aspects of culture, to ensure mutual transformation of these motives, to form a responsible attitude to their professional duties. As the development objectives of professional motivation of training in the field of tourism in students of the fourth level can be attributed: the upbringing of motives for improving the ways of activity, initiative and independence in setting long-term goals, the aspirations to creativity in educational and professional activities. The objectives of educating students of the fifth level of the PM development are to create conditions for its improvement in the direction of deepening the social and moral content, developing dynamic properties and aspirations for setting the goals of national importance. For students in the sixth level of PM development the training targets in the tourism sector are to support, encourage the existing motivation, create conditions for its further development. In the work of the teacher it is important to raise the prestige of students with high levels of the professional component of training motivation in the tourism sector, so that these trainees were authoritative in the group, and had a

positive impact on the team;

c) **the third rule provides that** in the formation of professional motivation of students it is necessary to know and use motivational potentials of components of the training system in the field of tourism (content, methods, tools, organizational forms) during professionally-motivating student training the techniques of implementing relations between the teacher and students should be used. When training in the tourism sector it is useful to adhere to the following rules: to purposefully apply the techniques of forming PM in accordance with the organizational form of training in the tourism sector, its structure, selected methods and forms; to stimulate the activity of mental processes (perception, attention, imagination, feelings, will, passion for sports, and so on); to initiate urgent requirement-motivational states, to constantly support and encourage their development in similar situations; to promote the development of the main components and properties of training motivation in the sphere of tourism;

d) **to perform the fourth rule for implementing the principles of professionally-motivating training of students majoring in "Tourism"** it is necessary to provide communication of general developmental and applied physical exercises and, consequently, the development of general and professional motives of training in the tourism sector. It requires a deliberate and systematic work, in the process of which it is advisable to use the following methods of forming the motivational sphere: creation of psycho-pedagogical conditions for developing general and professional motives during the context development (improvement in the context of their chosen profession); a continuous account of the relationship of general and professional motives of professional activity as a means of their formation, the efficiency of which is determined by the specifics of the ways of the tourist activity; implementation of the educational function of the continuity principle.

To move a student to a professional activity, it is important to ensure the transformation of the common motives of training in tourism into the professional. With sufficient development of professional motivation the focus in a student's tourist activity shifts from the performed task to the situation of practical and professional actions, while the task itself reflects the content of professional activity in the consciousness of the individual. However, if the professional motives of training in the tourism sector are less developed than the general ones, then such a transformation of motives does not occur. In such a case, the method of forming professional motivation of students should be used, based on the emergence of professional motives as a byproduct of the activity;

e) **to perform the fifth rule,** it is necessary to provide such insurance of "subject-to-subject interaction of the professional activities members that all teaching techniques of the teacher should correspond to the structure of the motivational bases of the student tourist activity. During this the teacher's activity should be aimed at creating favorable conditions for developing professional motives of training in tourism.

To encourage students to self-setting the professional goals of training in tourism it is required: to explain the purposes to students, as well as the nature and the content of the upcoming activities; inform them what physical and special qualities, applied skills will be formed during the training in tourism, what they should learn; to develop in students the ability to set goals, to encourage initiative, independence; to create problem situations and others.

To develop students' desire to achieve the goal it is necessary: to ensure compliance of the requirements and students' abilities with the professional work; create a sense of autonomy, of self-confidence; to apply supplementary and preparatory exercises; use the combinations of different forms of training in the field of tourism, widely use the recreational and cultural leisure activities, and others.

To reinforce students' confidence in the correctness of their actions, the teacher should: provide assistance only upon request; to organize the operative feedback with clarifications, self-training control, which give the perception of a lack of external control; in accordance with students' wishes to organize mutual aid and collaborative validation of the performed educational training tasks; use estimating, encouraging treatments.

To encourage students to self-evaluation of the professional activity results (development of an emotional attitude to the result), teachers need: to evaluate not only the level of abilities, skills of the students, but also the quality of their professional activity; to use informative treatments in the form of comments, negation, agreement, approval, et cetera; to sum up the work, emphasizing its importance; show pedagogical optimism.

In order to focus the student on the professional aspect of training in tourism it is essential: to disclose the practical, social, cultural or other significance of the content of comprehensive training; to show the connection of the professional requirements subject with the achievements of modern science and technology; to rely on the life and work-related experience of the students, their interests and aptitudes; to update and deepen the already learned applied skills, et cetera.

f) executing the sixth rule provides for timely corrections of the teacher's work, for which systematically, using the summary cards for the state of the professional component of the work motivational sphere and professional excellence, the student motivation is studied, its development is recorded, and accordingly the goals change, as well as the techniques, methods and forms of professionally-motivating training in the tourism sector. The teacher relies on the generated positive elements of professional motivation, aims to develop them. At the same time, it is important for him to neutralize in class the negative motivational states of the students. To make the best instructional decision, it is necessary to continuously review the effectiveness of the applied aids, to compare their motivational features, to take into account the conditions of use.

5. Conclusion

Thus, the article disclosed the following principles of professionally-motivating training of students majoring in "Tourism": the principle of compliance of the training content in tourism in all its elements and at all levels of the designing with the general and disciplinary goals of professionally-motivating training; the principle of the unity of the content-related and procedural sides of professional activity; the principle of the structural unity of the professionally-motivating training content at all levels of its formation; the principle of the content focus of professionally-motivating training on implementing the requirements of the qualification profile; the principle of the professionally-motivating training content correspondence with the content of the main types of the specialist professional activity.

These principles have the following requirements to professionally-motivating training of students majoring in "Tourism": professional orientation of the teaching and learning aids; the material should be engaging; compliance of the informative material content with the existing and emerging needs; the availability of the material contents for students; gradual growth in the educational material of new information about special training, in the light of which the previous knowledge and experience can be comprehended and extended to reveal the practical significance in the field of tourism; focus of the material content on developing professional thinking style, dialectical generalization of knowledge in the field of tourism.

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The Axiological Approach to the Analysis of the Problems of Modern University Education

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Abstract

The urgency of the problem under investigation is conditioned by the uncertainty of modern information society that demands from university education to focus not on acquiring "ready" knowledge in certain subjects, but on preparing the students for the perpetual new and unconventional objectives; on the students' awareness of their own educational activity; on designing and implementing their own educational route in line with the changing real-life and professional situations. The article seeks for determination of the essential characteristics of axiologization in modern university education as a process of implementation of axiological self-determination of teachers and students. The axiological approach for studying the problem has become a prevailing one. The article submits a classification of the university education values; the definition of the concepts of "axiological potential of a person", "axiological self-determination", "axiologization", "subjectivity"; describes the axiological component of the university corporate culture. The article submissions may be useful for the specialists in the field of university education, the researchers dealing with philosophy and sociology of education.

Keywords: *axiology; axiological orientation; axiological self-determination; university education; subjectivity; corporate culture.*

1. Introduction

1.1 Thematic justification

The situation of a personality's social growing-up in today's world is complex, contradictory, fluid. It is determined by the rapidly changing environment setting endless challenges to university education, creating new contexts, imposing new requirements and prospects. In the mainstream of emerging problems the need to pay more attention to the changes and personal transformations, to the issue of determining the dominant values of educational activities is becoming more evident.

In conditions of uncertain future we should pay attention to the growing significance of fostering the value-conscious personality traits, person's motivation and ability to self-determination through understanding the existential life forms including education. Against this background, the paper submits a new axiological understanding of the of university education, which determines the specification of its components and their relations by means of structuring axiological relationships in "teacher-student" interaction which leads to a positive change in their position in the educational and research activities.

The intensity of communication, expanding of the information field, efficiency of the rapid communications and new technologies do not only improve human resources, but also increase the risks in his activities. In particular terms of today we can observe the change in basic attitudes of an individual in the social and material world through improving such features as forecasting, freedom of choice, self-determination and heuristics.

In this social context the issues that become particularly significant are the orientation of the individual in the surrounding world of objective values of the society and culture, in himself, in his possibilities; feeling confident in past and present events, in building the image of the future and his personal life prospect.

1.2 The scientific problem

The scientific problem is determined by the civilizational transformations occurring in the present, which require a reorientation of university education on the development of a new quality of a human capital, namely, motivation to learn throughout life, axiological self-determination, self-organization, the ability to find innovative solutions to the professional and real-life goals. The modern university has to determine the fundamentals to create conditions in which the creative potential of the studentship, their creative abilities are realized in solving the strategic objectives to achieve success in life.

Education is the main channel of introducing a future specialist into the cultural, educational and professional values. At each stage of the development of society the education system undergoes certain changes according to its needs, ideology, values. The dramatic changes in the international community has resulted in new priorities in the field of university education. The civilizational shift has challenged the problems of axiology (the science of values), they again argue the values origin and evolution, the hierarchy and domination within the value system. Changing education in a changing world has brought to understanding of the need of a new strategy of university education.

It should be emphasized that the methodological basis of this issue is based on the theory of values presented in the studies of Russian and foreign scientists (Kagan, 1997) (Vyzhletsov, 1996) (Zdravomyslov, 1986), (Stepin, 2011), (Beck, Cowan, 2005), (Inglehart, 1995), (Schwartz, 2010).

1.3 The scientific importance of solving the problem

At present, the illusion of the possibility to solve the problems of development of university education only through the expansion of the resource (primarily financial) base of its existing structural elements is a serious threat. The actual risk (both financial and technological, and social) - is to invest into the reproduction of unprogressive university education. The inability of the majority of Russian universities to quickly and effectively respond to the system challenges of the modern world is determined not only by the lack of funding, but also by the mismatch between the traditionally established educational practices, programs and technologies and current requirements of the society and production. The long-term study of the rapidly obsolescent professional competencies objectively reduces the competitiveness of the country's human capacity in transition to the cognitive society claiming for the new forms of intellectual activity organization, new qualities of intellect and new quality of human capital.

The original purpose of education is to develop the personality able to take an independent and constructive attitude towards the external environment. In this case, it is not about adapting to the existing diversity in the social and professional spheres of life, but about the development of personal position in the process of university education basing on the assigned values and certain contents. It is the axiological resource that determines the effectiveness of activities including innovative ones.

The novelty of the research is determined by the fact that its solution will allow to consider the process of university education at a new angle, design it as an innovative, value-deterministic, creatively-active and subject-oriented process that increases the competitive advantages of both the university and its graduates.

1.4 The specific objectives to be solved by the project

The specific objective of this research is to study the main provisions of axiological concept of the university education development. The appeal to axiology and innovation theory of the university education sets as methodological guidelines of educational practice: personal meanings of education reflecting the ascent to real- life and professional values; achievement motivation; axiological self-determination, competency, social responsibility, leadership, synergy, creativity and subjectivity.

1.5 Attainability of the solution

Attainability of the problem solution and the opportunity to achieve theoretically and practically significant results is determined by the selection of methodological framework. The selected methodological framework and tools allow to

reveal the axiological relationships in the educational process to the uttermost, to identify the risks and prospects for basic lines of university development in the globalizing world.

2. Methodological Framework

2.1 The essence of theaxiological approach as a methodological framework of studying the problems of university education

The axiological approach as a methodological foundation for investigating the problems of university education allows to determine the structure and hierarchy of values, which not only guide the future professional activity of the student, but also shapes his relations with the world and people. Due to its value-orienting function, the educational process takes students into the sphere of philosophical understanding of social and educational reality.

There is the reason to distinguish between at least two organically related elements: the values which in the near or distant future should become the focus of education and formation in the process of education the "objective" and "subjective" values, the values of its development. Therefore, the university education is a fundamental scientific and practical framework for the formation of real understanding of the true and false values of life and activities expressing social, legal and moral norms of society.

The education values constituting the essence of pedagogical axiology act at each stage of its development as moral imperatives. But these values are not the laws of pedagogical activity - they are the basis of self-organization and self-development - the generalized representation of the desired and necessary things for social communities. The values of education cannot be appointed by the authoritarian way, they evolve with the changing social and cultural environment. The diversity of the communities' life, the differences in educational systems facilitate the formation of a number of pedagogical practices that relying on human values build the new educational systems in every sphere of educational space.

2.2 The potential of the axiological approach in the study of modern university education issues

The axiological approach has now acquired the status of an interdisciplinary approach to the study of the phenomena and facts of social nature. This approach, reflecting the realities of the diverse spheres of human life, the person's attitudes to the world, to people and to himself, establishes a specific application area, a specific system of relations. In line with this approach, we study the problem of axiological origin of life that is general for all the sciences studying the human.

In this context, the merits of the axiological approach include the fact that it allows to consider the following problems of modern practices of university education at a new angle:

- the issues of formation and development of the person's value system in educational activities;
- the values of self-determination of the student's personality in science, society, and culture;
- the study of the axiological component of the formation of the person's basic competency in the information society;
- the relationship between the tradition and innovation in higher education;
- the development of the axiological potential of the students' and teachers' personalities;
- overcoming the tendency of social stratification on such grounds as socio-cultural establishments as an image and lifestyle, social identity, social position, social status.

The axiological approach involves consideration of the educational activities based on the established relationship of the subjective and objective, the actual and potential, the necessary and accidental, the traditional and innovative.

3. Results

3.1 The basic values of university education

Building a strategy of the university education development in the modern world it is necessary to identify the fundamental values of university education. According to the results of theoretic study and diagnostic testing using the Delphi method we have identified the following groups of basic values of university education:

The academic values (institutional independence, fundamentality, academic freedom, academic solidarity (collectivity); promoting the innovation growth, professional competency and new paradigms of teaching and research, academic responsibility, unity of educational and research process; academic mobility; critical thinking; tutorial

relationship between the educator and the student (joining scientific schools); interdisciplinary research; international co-operation of teachers; elitism of university education).

The value of personal growth and well-being (self-determination; self- fulfillment; individuality; subject-subject relationships; continuity of education; the conformance of the human to environment and situation; professional mobility, health, corporativity, competitive graduates).

The values of civil society (freedom, democracy, openness, social justice, tolerance, ethics, cultural diversity, social responsibility).

Organizational values (decision-making based on congruence of interests and opinions; freedom in research; the status hierarchy based on the principle of scientific authority; technification of educational activities; standardization of the education quality (educational programs), creation of material values and knowledge, university competitiveness, the availability of educational programs for foreign students, strategic partnership of university and businesses).

3.2 The rationale for the concepts of "axiologization of education" and "development of the axiological potential of the student's personality"

It is essential to appeal to the concept of axiologization - a leading contemporary trend in the development of university education in a rapidly changing world. Axiologization is a way to implement the axiological approach to education which has been accepted as the leading methodological approach in teaching. In this paper axiologization is considered in the following meanings:

- a component of humanization of university education since in theory and practice it determines the content and hierarchy of humanistic values of education, where a person as the main value is a systematizing element;
- a method, the object of which is the development of creatively-axiological personality traits but for which it is impossible to make an act of creation, independent personal activity to achieve top results, significant life goals, professional development;
- an optimum of educational environment fostering the development of the personal insight, building lofty needs, building axiological capacity, forming the academic maturity of a student;
- a cultural part of education as it provides the translation of cultural values and the dialogue of cultures, reveals the uniqueness of each culture taking into account that the system of values is the matrix of culture.

The student's professional life and the quality of his professional activity largely depend on the level of his axiological potential. The development of the student's axiological potential suggests qualitative changes in value-conscious attitude to educational activities, to himself, to the future professional activity.

The axiological paradigm of pedagogy is based on a new understanding of the educational process as the personality's raising to the values of culture and science on the basis of a universal philosophical dialectical law of lofty needs.

3.3 The axiological self-determination of the university students

The axiological self-determination of the students is of special importance in the axiological paradigm of university education. Axiological self-determination as a pedagogical phenomenon is a process of gaining the meaning, the goals and resources of their personal lives in educational time and space. It suggests a qualitative change in the individual's attitude to his own life by forming a holistic view over the world and understanding his place in it. The driving force of self-determination is the achievement motivation.

The criteria and indicators of axiological self-determination of a person in education are:

- a cognitive one (the knowledge about the world, themselves, time, objective and meaning of life);
- an emotive one(the value-related attitude to the future life, value orientations);
- a pragmatist one (a set of skills of goal setting, planning, design, selection, construction of a temporal perspective of life, projects development and implementation).

The university is a place of the coupling-development of the university and personal space-time continua, which represent the educational environment activated by the subject; the integrity evolving in time and space, where one can find the meanings, accept the values and set the goals for future activities. The concept of space-time continuum of university education, according to V.D. Povzun, allows to characterize the university not from the only informative-procedural point, but also to emphasize the dynamics of its development in time and space and reveal its educational, scientific, industrial and social ties with the world (Povzun, 2011). The internal features of the continuum are determined

by the university corporate culture, the goals, values and traditions of the university life as well as by the style of pedagogical thinking, ways of interaction between the teachers and students.

The axiological self-determination of the individual in university education takes place both through the training courses syllabi addressing the problems of a human being and through the educational technologies enabling the person to reflect on his own life in a time perspective. Mastering the algorithm of goal-setting in educational activity results in transferring the logic of setting and achieving the goals from educational life to personal.

3.4 Subjectivity formation

The next area of applying the axiological approach to the university education is represented by the research of the students' subjectivity. Subjectivity as a pedagogical phenomenon represents a holistic axiological characteristic of a personality that reveals itself in the practical efficiency, axiological self-organization behavior. The student's subjectivity is the basis of his demand and use of the scientific knowledge as a methodological and technological means to solve his own educational and professional goals. The driving force for subjectivity formation appears the axiological self-determination as a process of gaining the meanings, goals, resources of the university education by the student.

We regard the university educational space as a context of a student's life which, at first, determines the student's individual educational programme, and secondly, it encourages self-development and self-organization; third, promotes developing a temporary life perspective and can either extend the resources for subjectivity formation or limit them.

We describe the role of the axiological personality structures as a source and a mechanism of self-organization of personal and professional growth as the leading idea of subjectivity formation of the university students. This idea is backed with the necessity of understanding the values and meanings of the university education content. The meaning that the student has perceived specifies the direction for his educational and professional activities, determines decision-making both personally and socially relevant.

3.5 The axiological component of the university corporate culture

The scope of research of axiological foundations of higher education includes the study of the university corporate culture, the processes of integration of traditional and innovative research trends, the search for the optimal balance between the classic academic ethos and post-academic values. This process has its differences both in practice of modernizing particular universities, and at the level of national system of higher education, and the macroregional socially and market oriented traditions.

In the structure of corporate culture we identify the axiological component (the value-based orientations) as systematically important: it sets the objectives (individual and collective) and chooses means of achieving them within the values. It is the axiological approach that allows to consider the corporate culture as "common identity" characterized by a common commitment of the staff to the values, ethical principles, objectives and mission of the institution providing the interaction of the values (and hence - the interests, attitudes, aspirations) of an individual and the team (groups, organizations, communities). It was found that the essential characteristic of the axiological core of the university corporate culture is the focus on a human, as culture brings the humanistic values and meanings to the corporate activities, and distinguishing the "human dimension" of different objects they form the core of culture. *The axiological function* reflects the qualitative state of culture, promotes the production and retention of corporate values, thus affecting the attitudes and beliefs of the subjects of the educational community: the corporate values become personally meaningful or come into conflict. The structure of the axiological component of the university corporate culture includes the following groups of values: humanistic, professional, social.

4. Discussions

4.1 The present state of the research on this issue, the main directions of research in the world science

The axiology of education is a perspective research area allowing to find the resources for improving the quality of education. The axiological approach is a necessary component of:

- understanding of the sustainable social development (Vyzhletsov, 1996);
- studying the interaction between the knowledge and axiological consciousness of a person (Kagan, 1997; Rozov, 1992);
- studying the phenomenology of axiological attitudes of a person (Alexeeva, 1984; Bobneva, 1995; Lapin,

2003; Sobkin, 1994);
- The basis for the formation of the new scientific thesaurus and new educational paradigm (Bezdukhov, 2008; Kiryakova, 2010, 2013; Krajewski, 2001);

The social mission of an innovative academic university has been described in the works of (Barber, 2013; Wolfson, 1999; Ladyzhets, 2003; Ogurtsova, 1993).

However, the change of an angle of pedagogical views concentrated in the axiological paradigm requires specific studies that can reveal the originality in shaping the image of the world, image of the future, self-image; particularities in forming the students' subjectivity; axiological laws of competence formation. The explanation of the marked phenomena distinguishes our research from other research projects.

4.2 The axiological paradigm of university education

The axiological paradigm of education is built on a special thesaurus: a value, axiological attitude, axiological orientations, axiological self-determination, axiological interaction between the teacher and the student, the dominant values of the education content, the axiological determinants of personality development, axiological resonance, communication as the values exchange, value-conscious choice, axiosphere of culture, axiological potential.

5. Conclusion

The changing education in a changing world leads to reframing of the methodological foundations of the human sciences including pedagogy. The traditional ideas about the laws of intellectual development, the formation of creative potential absorb new theories, concepts, innovative technologies, models, various educational programs and require greater attention to the fundamentals of science and practice. At present, one of the strategic guidelines for university education is the axiological paradigm of pedagogy. The axiology of education is a promising research area that can answer many questions, the solution of which can arrange for improving the quality of education. The main reserve for increasing the quality of education in the context of axiology appears the personal potential of the students and university teaching staff.

6. Recommendations

The article submissions may be useful for the specialists in the field of university education. The potential capacity of the results obtained in our research project lies in the ability to use the axiological resource to improve the quality of university education (through the development and implementation of the scientific and methodological support for the processes of the students' axiological self-determination, rexpress their subjective position, advanced training for teachers, developing the competitiveness of the university graduates).

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The Concept of the Regional Industrial Cluster Information Support

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Abstract

One of the priorities and internationally accepted approaches to the management of innovation processes in the global economy is the cluster approach, a product of the integration of economic processes, which is a powerful tool to promote regional development. It has been effectively studied in the article the regional cluster with data items to ensure the effective interaction of all participants in the process of achieving economic goals. The paper presents an algorithm of information modeling of regional industrial cluster, comprising the steps of determining the hierarchical structure of the processes, the organization of all kinds of flows, the description of the logical structure and the information needs of each process. This article is intended for economists, researchers, enterprises executives, professionals in the field of information technology, dealing with information support of manufacturing processes.

Keywords: *regional industrial cluster; modeling; information support; process approach; information model.*

1. Introduction

1.1 Background

A characteristic feature of the modern development of the Russian economy is the creation of industrial clusters, a set of interrelated companies and related educational and management structures, as a means of ensuring sustainable development of the country regions, forming the basis for economic and political management (Shalmina, 2008; Vakorin,2013). The assembly of the end-product, making its constituent parts and components should have a cluster, local character, while reducing production costs and improving the quality and performance of the final product. The

development of Russian production in the new economy lies in finding strategic partners, a transfer of technologies and further clustering of companies producing the end-product with new technologies and requirements, manufacturers of materials, service, financial and scientific companies, forming a regional industrial cluster (Tsikhan, 2003). Creative activity of clusters consists in the fact that most of their members do not compete directly with each other, but serve different segments of the industry.

1.2 Status of a problem

To improve the competitiveness of the region on the basis of the cluster approach requires specific strategy for the development of an existing or projected industrial cluster, concentration of factors and resources that give a competitive advantage through the development of high-tech industry. Regional clusters are the base points of market growth for the sector of the state economy, they increase, in particular, the international competitiveness of the country. Currently, a cluster policy in the Russian Federation is at the stage of formation and development. The cluster theory was considered most completely in the works of the American scientist M.Porter (Porter, 2006), there also may be distinguished scientific works of foreign and domestic scholars (Jones, 2006; Feser,1998; Titov, 2009 and others.).

At the same time, despite the availability of works in the field of development of the clusters theory, many issues of structuring and evaluation of the economic information, creation of clusters information support remain currently almost unexplored. The number of cluster subjects, its employees, resource availability, customer intimacy, competitors, as well as suppliers of components, materials and services – is only a part of the factors contributing to the development of clusters and regions in which they are located. No less important role play the flows of information, its transparency, a unique standardization system of activities of subjects of cluster relations and business processes (Pogodina, Zadorova, 2009; Nigmetzyanova, 2011; Sirazetdinov, 2010; Tatarkin, Lavrikova, 2008).

1.3 Analysis of foreign experience in the field of development of regional industrial clusters

Analyzing foreign experience of regional industrial clusters functioning: (the USA (computer, automobile, an entertainment cluster), Canada (biotech, a high-tech cluster), United Kingdom (biopharmaceutical, educational), France (perfumery and cosmetics, food), Switzerland (biotechnological, financial), Finland (forest, a cluster of information and communication technologies, energy, metallurgy, machine building), India (a cluster on the production of woven and knitted fabrics, food, machine-tool, a leather production cluster, pharmaceutical), China (automobile, high-tech, a steel production cluster, electro –technical, a cluster for the production of mobile phones), Japan (electro –technical, automobile, an information technology cluster, biotechnological), one can systematize an extensive experience in the development of competitive clusters in a sustainable competitive advantage over other regions due to higher productivity, innovation development and new types of businesses (Evstigneeva, Evstigneev, 2004; Tatarkin, 2008). Two main models of cluster policy function in the economic development of clusters: the Anglo-Saxon (the USA, the UK, Australia) – this is a market model in which the role of the federal government is to reduce the barriers and to form a method of operation of the regional authorities and key clusters stakeholders; the continental model (Japan, Republic of Korea, Singapore, Sweden, France and others.) in which a federal policy plays a crucial role in the development of clusters.

It seems necessary that such structured information support to exist, that would allow to identify and diagnose the condition of all the components of the regional industrial cluster at any point of time. Such interaction requires a special structural organization of information support of all processes of the cluster, using the mechanism of standardization, and information technology at all stages of the product life cycle, from design and manufacturing to modernization and recycling of the industrial end-product.

2. Materials and Methods

2.1 Conceptual provisions of the process approach to the business process modeling

The proposed by authors (Kovalev, Kovalev, 2009) the treatment of the process approach allows us to formulate the notion of processes for the regional industrial cluster as a stream of activity of each regional industrial cluster subject, the result is a final product that represents value for the consumer.

Thus, the activity of any subject of the regional industrial cluster can be described by a set of business processes, regardless of the type of goods or services produced. This definition is specified in Vakorin's materials (Vakorin, 2006), which state that the set of enterprise activities should bring satisfaction from the end-product to the customer. In this

context the "customer" means the person who receives the results of the process. In our case, within reviewing the regional industrial cluster activities, customers of the process can be both external (consumers of goods or services) and internal (the next process in the cluster processes network).

Certainly, the process approach is not just a description of the sequence of actions to transform something, here except the technology of certain business processes performing must be initially determined the "owner" who is responsible for the effectiveness of the process (ISO terminology), as well as requirements to the resources (personnel, equipment, tools, production environment, information, etc.), the criteria for the process effectiveness evaluation and the satisfaction of its customers.

The process approach implements the transition to the resource-saving organizational structure (Lean production) (Womeck, Jones, 2006) of the regional industrial cluster which allows you:

- to reduce the number of levels of decision-making by increasing the performers' responsibility in each of the selected business processes;
- to improve the quality of products or services, and the enterprise activity as a whole by means of orientation on the end-product and customer satisfaction;
- to operate successfully in a dynamic market with effective use of budgeting and management accounting principles, as the production restructuring is carried out within the only one structural unit of the regional industrial cluster;
- to automate the technology of business processes execution of the regional industrial cluster by creating the information support of processes.

2.2 The use of the process approach to the design of the regional industrial cluster

To create an information support of the regional industrial cluster in compliance with the properties of integrity, completeness, relevance of economic information it is necessary to:

1. Select the basic processes of the regional industrial cluster;
2. Define the boundaries of the business processes of the regional industrial cluster;
3. Set the "process owner", i.e. the official who is responsible for the progress and results of the process - and he/she will be a source and a recipient of economic information of the regional industrial cluster;
4. Identify the procedure or the established way of doing business process (documentation describing the technology of works or indicators of a process);
5. Ensure the necessary and sufficient number of control points (or matching) inside the business process through the process indicators - statistical data about the efficiency and performance of the process and evaluation of process customer satisfaction.

2.3 The definition of the regional industrial cluster processes

In the scientific literature (Repin, Eliferov, 2006; Sirazetdinov, Brazhkina, 2010 and others) it is indicated that all the processes of the organization are divided into four types: management processes, core processes (life cycle processes), the processes of resources provision and processes of measurement, analysis and improving. Analyzing the economic cluster processes outlined in the article, let's define the basic processes of the regional industrial cluster in accordance with the nature of the enterprises activities - subjects of the cluster:

- The production process of the end-product;
- The process of resources delivery to produce the end-product;
- The process of the end-product marketing;
- The process of developing knowledge-intensive production technologies and personnel training for the regional industrial cluster, that is, science and education.

On the basis of the distinguished basic processes of the regional industrial cluster further there will be carried out a documentation of the process, i.e. it will be done the accountancy of its inputs and outputs, the mechanisms of functioning, the necessary resources, the system of indicators and will be developed the infological model based on the selected methodology of the process modeling, will be defined performance indicators and activities efficiency of the regional industrial cluster.

3. Results

3.1 Analysis of the dynamics of the regional industrial cluster

Integration of different organizations into the industrial cluster is motivated by the agreed requirements to suppliers and dealers, reducing costs on the implementing of new production technologies by means of production output, increase of the potential market for engineering and consulting services, including for small businesses, through the introduction of subcontracting in the performance of complex projects and programs, increase the ability of enterprises, including small ones, to attract investments and grants; a more effective system of access to foreign partners and new markets, as well as absolute extension of access to information on the market needs and small businesses products and services promotion to the market of large enterprises.

The union into the cluster, based on the integration, forms not a random concentration of a variety of scientific and technological inventions, but a certain system of dissemination of new knowledge and technologies. In this case, the most important condition for the effective transformation of inventions into innovations and innovations into competitive advantages is the formation of a network of sustainable information links between all cluster members. Their creation is extremely important for transition of the economy on an innovative way of development; that requires constant information contacts of innovation process participants, allowing to adjust the research, the experimental development and the production process.

Such interaction requires special structural organization of information support of all processes of the cluster using the mechanism of standardization and information technologies at all stages of the product life cycle, from design and manufacturing to modernization and recycling of the end-product production.

3.2 The structuring of the regional industrial cluster economic information based on the process approach

It is necessary to determine the type of objectives, a methodic of their solution and the necessary amount of economic information for developing cluster structures in the regional economy. Grouping of objectives of cluster policy is given in a table 1.

Table 1. Ways of solving regional cluster policy objectives

Objectives	Methods and ways of solving
Diagnostics of Clusters	• Development of the cluster identification methodic • Development of the cluster competitiveness evaluation methods • The methodic for priority clusters selecting; • Priority clusters ranking from the standpoint of regional development
Cluster Initiatives Maintenance	• Allocation of the organization-facilitator and contribution to its efforts to form a cluster; • Promotion of the establishment of the group leaders and organization of workshops with the participation of the facilitator, the group leaders, representatives of the authorities; • Institutionalization of the cluster initiative; • Development of the cluster vision, areas of its activities, the strategic plan, the action plan for its implementation; • Acceptance of the resolution on the Coordinating Council establishment for the formation and development of the regional cluster, etc .;
Promotion of Clusters' Development	• Facilitation of implementation means for the cluster development: • Organizational assistance in coordinating the cluster members' efforts; • Support the creation and development of infrastructure; • Assistance in the personnel training and education; • Tax and other benefits for the cluster members and others.
Monitoring of Clusters	• Creating a system of cluster development indicators and the methodic of its data collection and analysis; • Evaluating the cluster effectiveness as a whole and for its individual members; • A system of clusters efficiency monitoring in the region

When analyzing the solving methods and forms of each objectives, it is necessary to have such structured information resources that would identify and diagnose the condition of all the components of the regional industrial cluster at any

time, in other words - the creation of information support (Moiseeva, 2002; Vasiliev, 1994) of the regional industrial cluster would greatly contribute to solving an urgent problem of the regional industrial cluster activity evaluation.

Economic information, included into the information support of the regional industrial cluster at all levels, is very diverse in its content. At the level of enterprises, a component of the regional industrial cluster, they are:

- description of technology and production conditions;
- technical characteristics of the production means (firstly, equipment);
- market conditions (prices, volume of demand);
- data on working capital;
- data on staff;
- data on the availability and resource requirements;
- standards, targets;
- collection of indicators (capital intensity, profitability, cost value);
- various orders, instructions, methodic, etc..

The input information of the regional industrial cluster comes from outside. The part of it, the initial information, comes from the object of management and is obtained by direct measurement or calculation. For cluster subjects engaged in industrial production it is the volume of output, the number of defective goods, the number of workers, the downtime, the stores in the warehouse, etc. The initial information contacts most closely with a particular activity of managed economic units and includes both slowly varying (relatively constant) and operational data.

The internal information of the regional industrial cluster includes regulatory reference, accounting and planned information of all enterprises – that is a component of the cluster.

The receiving of output data should be considered the final result of the regional industrial cluster information processing, the data which are distributed among the subjects of the cluster (for example, the foundation of economic incentives, the volume and structure of investments, reallocation of resources, etc.) and the regional authorities (for example, reporting).

3.3 The algorithm of the regional industrial cluster information modeling

Taking into account the information aspect of modeling, considered in this paper, we suggest the following sequence (algorithm) of modeling:

Step 1: Select the basic processes of the upper, middle and lower level of regional industrial cluster functioning based on ISO 9000: 2000. Here on the upper hierarchical level the logic of interaction of regional industrial cluster subjects is described, at the middle level - the interaction of production processes, and then (on the lower level) - consumer information technology in the work of individual experts on their work places. Thus the process parameters is the information - process indicators and criteria which help the process "owner" (person in charge) and cluster management to judge the effectiveness of the process and the customer satisfaction of processes results.

Step 2 - Build a tree of processes, including the processes of regional industrial cluster and their hierarchy. At the top level of the tree the business processes are divided into three groups: basic, providing and management.

Step 3: Create a conceptual model of the regional industrial cluster, describing all its subjects, as well as material and information flows. The model is based on the DFD (Data Flow Diagramming) notation and allows reflecting the structural units of the regional industrial cluster and the interaction between them through information flows. The model provides an opportunity to reflect external, towards the system, sources and data destinations, logic functions, flows and data storage to be accessed.

Step 4: Distinguish by ABC-analysis significant from the point of view of the modeling purpose the economic information of each of the processes of the upper hierarchical level of the regional industrial cluster quantitative and qualitative indicators, i.e., classify processes indicators according to their importance and significance level. All processes indicators basing on the ranking are divided into categories according to the degree of influence on the final result, the rating is built in order of decreasing importance of the indicator with the distinguishing of groups A, B and C.

Step 5: Using the object-oriented approach, we carry out building of the information model of basic processes of the regional industrial cluster through the notation UML (Unified Modeling Language).

In the basis of the proposed approach the processes interaction of the regional industrial cluster is fulfilling through an organized unique information environment (space) containing a specially structured information (knowledge base in the discipline). This approach will enable the construction of a dynamic infological model of the regional industrial cluster.

Step 6: The model reflection through indicative indicators of the processes on the stage of transition from the implementation of previously submitted models to creation of information support for the regional industrial cluster in the

form of a real information system or a database.

This multi-component modeling in accordance with the above algorithm and obtained at each stage models will let: to create a multidimensional information field (software) of the regional industrial cluster processes; to reflect the current status of the cluster subjects by means of evaluating the significant parameters of the processes; to ensure a real functioning quality system in enterprises - subjects of the cluster as the initial basis for constructing and evaluating is the standard of ISO 9001: 2000 group; to implement the accumulation of statistics on the condition of regional industrial cluster processes and its analysis for operational management and the efficiency increase of regional industrial cluster activity; to define the methodology of qualitative and quantitative measurements and evaluations of the regional industrial cluster processes in order to determine the desired state achievement.

4. Discussions

Existing models (logical, production, frame-based, net, object-oriented, special, complex) do not provide all the necessary key requirements (Bashmakov, Bashmakov 2005; Karabutov, 2009; Semakin, 2005), therefore it is necessary to create the model that supports the optimal functioning of regional economic cluster and serves as a basis for the development of an automated system of the cluster management.

Due to description of the regional industrial cluster processes, identification and distinguishing efficiency indicators and performance of its processes, the process owners and regional management structure of industrial clusters receive a single technology of work performance through the description and standardization of process technologies, access to information resources, ensuring transparency of cluster subjects, parameters for the cluster activity evaluation, the mechanism for making management decisions based on an accurate information and facts.

5. Conclusions

The structure of the proposed approach to information modeling of the regional economic cluster includes the main processes of the cluster and the relevant parameters of these processes. The presentation form of the model and the level of its detalization is determined by the modeling objectives, this form becomes the criterion for the end of the modeling. The final result of this process is a set of closely interrelated descriptions, since the top-level description of the overall system and ending with the detailed description of parts or operations of the regional industrial cluster.

Thanks to the use of information models and systems of information integration it is provided the effective implementation of business technologies in a single information space, integration and optimization of information interaction of cluster members. In the end, we form a single information space, providing information interaction of the product life cycle participants: design companies, manufacturing companies, suppliers, service organizations and the end user.

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The Methodology of Complex Continuous Training of the Students of Technical Universities to Innovative Activities

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Abstract

The urgency of preparing students for innovative activities is connected with the increasing requirements of the modern economy for the specialists' competencies. The paper presents a methodology for the integrated continuous training of the students of technical universities to innovative activity. The methodological basis of the study is backed with the systemic, competence-based and resource-based approaches. The methodology presents the system of competencies of innovation activities including five levels and four components at each level. The training is carried out within the three stages: the guidance stage, the formative stage and prospective stage. For every stage we have determined the objectives, mechanisms, approaches, teaching tools and planned results. The experimental testing of the methods has allowed to identify the main factors of successive teaching. The results of the study may be useful for researchers and practitioners studying the problems of innovative engineering education.

Keywords: *methods; engineering education; innovation; innovative learning technologies.*

1. Introduction

At present, the most important challenge to the development of innovative industries (such as information technology, aeronautics, innovative engineering, biotechnology) is a shortage of highly qualified personnel proficient in the methodology and technology of developing innovative products. The national educational and professional standards, the international recommendations include the requirements for the innovative competencies of the graduates. Training the students for innovation activities is a mandatory criterion for public and professional accreditation of the education programs in engineering and technology.

The Strategy of innovative development of the Russian Federation for the period up to 2020 sets the most important task of developing human resources in science, education, technology and innovation including the adaptation of the education system in order to develop the competencies, skills and behaviors from childhood that are necessary for

an innovative society and knowledge-driven economy, as well as the formation of a system of continuous education.

The Strategy presents the core competencies of innovation that should be formed in the system of continuous education:

- the ability and willingness to lifelong learning, continuous improvement, retraining and self-training, occupational mobility, the aspiration for the new;
- the ability to think critically;
- the ability and willingness to a reasonable risk, creativity and entrepreneurial spirit, ability to work independently, willingness to work in a team and in a highly competitive environment;
- the foreign languages skills, which implies the ability to free everyday, business and professional communication.

Therefore, the development of the technique of formation of innovation competencies in continuing education is an urgent problem, which has been solved in our study. Under the innovation activity we mean a set of scientific, technological, organizational, financial and commercial activities, including the investments into new knowledge aimed at obtaining a technologically new or improved products or processes.

The problem of educating students for innovative activity has been widely discussed in the scientific and methodological literature.

Therefore, the article of Agranovish (Agranovich 2003) introduces the term "innovative engineering education" as the process and result of purposeful formation of specific knowledge, skills and methodological culture, as well as complex training in the field of engineering and technology for the innovative engineering activities through the appropriate content and methods training. It is proposed to use active learning innovative technologies such as contextual learning, problem-based learning, project-based approach and others.

The article (Temple, 2004) describes the experience of teaching innovation strategies in the educational programs of Glasgow Caledonian University (UK). The educational programs include training in all phases of the innovation process including the establishment of small businesses. When training the following principles have been applied: the principle of active learning (action learning), the principle of cyclic training (double loop learning), the principle of teaching basing on individual professional and real life experience of the students (experiential learning) and others.

A. Berglund's article (Berglund, 2012) examines the innovation from two sides - as a result of the students' training and as the technology in the course of their training. The innovative competencies become the most important result of studying in higher education and the programs that do not develop competencies are considered obsolete. The employers' surveys show that 95% of companies experience a shortage of engineering personnel because of the discrepancy of the level of training with modern requirements.

The modern recommendations for the modernization of engineering education are called CDIO (Conceive, Design, Implement, Operate) (Crawly, 2013). The innovations in CDIO embed in the learning environment as an integral part. The education program should provide for at least two opportunities: to gain experience of designing and implementation activities which develop the skills in designing the products, the processes and systems as well as the ability to apply knowledge in practice. The expertise can be achieved in terms of the graduation projects, apprenticeship and internship.

It also assumes the widespread use of the integrated education involving interdisciplinary complex tasks. It is desirable to attract employer representatives from the real enterprises of engineering and technology. In addition we recommend the use of practice-oriented methods of active learning when the students work in situations that simulate professional engineering activities such as design, simulation and case-study.

The article of Eyerer (Eyerer, 2003) discusses the features of the project-oriented approach in American universities. The project approach involves teaching centered on case studies. A case is a description of the actual situation from engineering practice. The students are required to analyze the case, to apply knowledge of engineering and technology, management and production organization and offer the most effective ways to solve the problem. The project technologies are particularly important for the teamwork. In this case, the team is offered the cases that fully imitate true engineering problems. Prototyping is widely used as a more simple process that is easier to manage within educational objects.

The article of Enmark (Enmark, 2005) presents several innovative technologies including contextual learning. Contextual learning involves the study of theoretical knowledge in relation to their specific application in the future professional activity. Contextual learning increases students' motivation, results in deep knowledge.

The teaching technology based on experience is widely represented in the study of Kolb (Kolb, 2001). All the students' activities can be classified according to the degree of abstraction varying from a concept to a certain experience and according to the degree of activity that varies from simple observation and passive study to an active experiment.

It is necessary to manage the teaching process with specific actions, to deduce the generalities and abstraction on

the students' own experience.

The article of Muratov (Muratov, 2008) examines the use of competence-based approach while designing the teaching programs for the students' innovation activity in the field of engineering and technology. The authors have justified the need to introduce a competencies related to the field of innovation.

On the assumption of the submitted competencies we have submitted the teaching content in the field of innovation including a core which is invariant to all areas and levels of training, providing the students with universal and professional competencies that are common for all levels of technical (technological) education programs, and the variable part reflecting the particular implementation of the innovative projects in a particular subject area.

A comprehensive system of training for a bachelor degree for innovation is presented in the study of Naumkin (Naumkin, 2008). The author suggests to develop the ability for innovative engineering in the course of teaching technical disciplines. It is necessary to integrate the fundamental science and applied engineering disciplines and extracurricular students' work in academic competition and research environment.

The approach to training the graduate students for innovation is presented in Butler's study (Butler, 2006). The authors have developed a model of training for a master's degree in engineering and technology to provide innovation and specified the didactic conditions for its implementation. The analysis of the master's core activities has shown a close relationship between innovative and research activities.

2. Methodological Framework

2.1 The system approach

In our research the system approach has become foundational. The specificity of the system approach is to consider the process of research competencies formation in terms of the integrated system of its components, in the variety of their connections and relationships that are in constant development. It contributes to the identification of the integrated system properties and quality characteristics that are missing in the system components.

2.2 The competence-based approach

The second important methodological approach is the competence-based approach centered around the concepts of competence and competency. For our research the competence-based approach determines the competencies as the key component of the education content model. A competence as a complex object consists of the content-related components: knowledge, skills, values, experience. In the structure of the competence we have identified the content-related levels determining the degree of autonomy, responsibility, creativity of the related activities. Using a complex structure allows to determine the student's level of competence.

2.3 The resource-based approach

While arranging the students' training for innovation the educators should also consider the possibility of practical implementation of the submitted approaches. To achieve this the resource-based approach seems the most useful. Applying the resource-based approach in designing the model of students' training for innovation activity involves the assessment of the organizational and resource supply of the proposed technologies for implementation.

2.4 The principles of training the students for innovative activity

The effective training of the students for innovative activity can be carried out only under some methodological principles: interdisciplinarity, continuity, professional orientation, the subject's activity, integrity. We have studied every principle:

1. The principle of interdisciplinarity requires the introduction of innovative technologies of active learning in all general education, general technical and professional disciplines. The innovation activity requires a deep knowledge of economics, legal and social aspects of innovation implementation, so it is necessary to use complex projects and assignments including both the technical components and marketing, organizational, legal ones.
2. The principle of continuity requires the arrangement of training for innovation at all levels while ensuring the continuity of educational content and continuous expansion of the specialist's scope of innovation raising his awareness in the field of innovation.

3. The principle of professional-orientation supposes training for innovation that can only be achieved with a constant focus of training on the future professional activity. The innovative training should not be detached from real engineering problems, it is necessary for the students to know the specifics of innovation in their professional field.
4. The principle of subject's activity. Achieving the mastery of innovation activities is only possible with the use of innovative forms of active learning like the problem-based, project-based learning, learning from experience. In addition, the student should take the advantage of the university innovative environment, its infrastructure, innovative events: seminars, conferences, contests and competitions.
5. The principle of integrity. The national and international experience in training students for innovation shows that the significant results can be achieved by combining the material, personnel, financial resources of the educational organization and the employers as the representatives of industry innovation. The interaction of education and industry can be performed in a number of areas. It may include excursions, practices and internships, the experts from industry participating in designing the syllabus of the educational process, its implementation, assessing the training efficiency, using real industrial problems and projects.

3. Results

3.1 The content of the model of training students for innovation

The developed model of teaching students for innovative activity consists of the following interrelated components: the target, structural, procedural, technological, effective, evaluative.

3.1.1 The target component of the model

The target component of the model includes the hierarchy of the educational objectives the most important of which is to train the students for effective innovation activity in today's innovation economy. There are also secondary objectives related: the study of the theoretical foundations of innovation, technological, economic, legal aspects of the innovation process; the experience in implementing the innovative projects, teamwork, management and division of responsibilities; development of the research skills, creative abilities and creative thinking; increasing the students' motivation to train for their future profession in the field of innovative industries.

3.1.2 The structural component of the model

The structural unit of the model is a description of the major structural components of the innovation competencies developed during the course:

1. The pragmatist component includes a set of professional skills.
2. The cognitive component of the competence supposes a body of knowledge.
3. The axiological component is presented with a system of values, attitudes, rules and principles of behavior in professional community and professional activities.
4. The empirical component describes the specialist's experience.

3.1.3 The procedural component of the model

The procedural component determines the main stages of training.

A guidance stage aims to develop professional knowledge, skills, initial experience and axiological attitudes in the field of innovation providing the students with the orientation of innovation.

The result: formation of the general scheme and orientation foundations of innovation, accumulation of the guiding methods of innovation activity, the emergence of structural and content-related components of the innovation competence components - the cognitive, operational, empirical and axiological.

The formative stage: the development of preformed professional knowledge, skills, experience and axiological relations in the field of innovation providing initial willingness to innovate. The result: the knowledge about the innovative methods of operation, the ability to perform innovation, receiving the initial experience in innovation, as well as formation of axiological attitude to innovation, to the need of innovative transformation.

The prospective stage: formation of innovation competencies as the integration of structural and content-related

components - the cognitive, operational, empirical and axiological.

3.1.4 The technological component of the model

The technological component presents active innovative technologies and means of teaching applied at each stage of teaching.

These technologies and tools include special courses, professionally oriented thematic meetings, seminars, disputes, excursions at the guidance stage of the training; professionally focused tasks and project assignments, innovative engineering games at the formative stage of the training, innovative problem situations, case studies, projects, innovative apprenticeship at the prospective stage of education.

The problematic manufacturing situation represents a single, integrated, relatively consistent set of circumstances conditioned by a certain working situation to be solved by means of innovation.

The cases of innovative production content represent the structured (or semistructured) description of the existing crisis situation that has resulted in some difficulties for further production development.

The innovative engineering game is a kind of integrative quasi-professional activities aimed at the development of perception and acquisition of the innovative engineering reality by the students through the simulation game recreating the roles of the main behavior types of the engineers within certain game-driven models of the engineer professional work.

The innovative engineering tasks implemented in the educational university process represent a didactic model of the problematic engineering situation related to its main types - the design-and-engineering, managerial, research, experimental that contains the data and conditions necessary and sufficient to resolve it with available knowledge and experience in order to develop the engineering competence of the future professionals of the field.

The apprenticeship at manufacture as a part of the process of vocational education of the technical college student has the greatest potential to create conditions for the formation of innovation competencies.

3.2 The efficiency component

The efficient component describes the educational result in the form of the following levels of competencies identified in our previous publications (Belonovskaya, 2012; Shukhman, 2013):

1- readiness to practical action according to a typical sample.
2- readiness for self-regulated responsible actions.
3- readiness for the applied independent practice in innovative environments.
4- readiness for the design, construction, implementation and realization of the innovative products, technologies and services.
5- willingness to research and forecast in the field of innovation.

The content of the competencies has been developed on the basis of the TUNING project recommendations centered on the professional standards offered by the employers for a variety of engineering and technology fields.

3.2.1 The evaluation component

The evaluation criteria includes the criteria for assessing the effectiveness of the system of training the students for innovation:

1. A motif-based criterion - the criterion reflects the direction, goals and objectives of training students for innovation.
2. A system-procedural criterion - the criterion that assesses the dynamics and quality of the process of educating the students to innovate.
3. An effectiveness criterion - the criteria that characterizes the level of achieving the planned level of targeted training of the students for innovation.
4. A resource criterion - the criterion that characterizes the availability of the necessary material, human and other resources to effectively teach students for innovation.
5. The innovative criterion - the criterion characterizing the degree of novelty and innovative tools, methods and techniques of training used in students' training for innovation.

4. Discussions

The individual elements of the developed model: the competencies framework, the system of criteria, the system of innovative technologies and learning tools have been tested in relation to the bachelor's and master's degree in "Engineering", "Information and Computing Equipment","Aircraft","Power and Electrical Engineering" in the Orenburg State University. The analysis of the experience of implementation of this education has allowed to identify the major successful factors for the formation of innovation competencies.

1. The factor of the long-term goals is characterized by the fact that the determination of the long-term prospects on the basis of existing competitive advantages and innovative capacity creates opportunities for planning the future, more responsible and qualitative training in specific priority areas, focusing on sunrise areas of knowledge and rapidly developing areas of activity, differentiation of the strategy of innovative development.
2. The factor of continuity of the formative processes in modern higher education is that the education standards have a successive character, in this regard the graduates from various levels and stages of education will be able to continue expanding the existing educational and innovation competencies at the next level or stage.
3. The factor of university focus on high achievement helps to attract talented young people into higher schools, to retain the talented members of the academic staff, to attain the university image perfection and increase its ranking.
4. The factor of integration of the university and enterprise resources provides the students and the university with transition from a scarce number of disciplines and highly-specialized qualifications as the knowledge formally confirmed by a diploma to a set of core competencies and ability and willingness to perform certain innovative activities that are significantly demanded in the workplace. The integration of the scientific, financial and material resources of the university and the company provides the development and implementation of multidisciplinary suprasectoral computer technologies to create significant and unique scientific and educational practical groundwork through the systematic capitalization and repeated use of transdisciplinary new knowledge in practice, to establish rational, efficient schemes and algorithms of the engineering (polytechnic) transfer system, which is essential for to develop the innovative competence.
5. The factor of intensification of education is related both to the introduction into the teaching process the technology of careful management and selection of the most productive and effective teaching technologies. The integrated informatization of education, the introduction of smart technologies create a new educational environment in which teaching changes its characteristics and provides the students with a wider range of innovative competencies in a shorter time. These technologies of intensive training include, in particular, the development of a system of regular participation of the students and staff in joint processing of the real projects (within the framework of virtual project-oriented teams) on request on the basis of the advanced acquiring and applying the key competencies and the technologies of computer engineering.
6. The factor of actualizing the students' resources describes the opportunities for students to acquire the innovative competence. All the technologies and means of competencies formation including the tasks, assignments, games, case studies, problem situations, work practice, primarily interact with the previous experience of the learner and rely on it and then create new opportunities for its actualization.

5. Conclusion

The developed technique of the integrated continuous training of the students in engineering to innovate appeared promising in the course of experimental testing. The key features of our approach is the continuity of training at all levels of higher education, integrative learning tools and technologies. The training is carried out in three stages : the guidance stage, the formative stage and the perspective stage. For each stage the objectives, mechanisms, approaches, learning tools and deliverables have been determined. The experimental testing of the methods has allowed to identify the main factors for successful training.

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The Peculiarities of the Advanced Training of the Future Specialists for the Competitive High-Tech Industry in the Process of Integration of Education, Science and Industry

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Abstract

The urgency of the advanced professional training of the future competitive specialists for a high-tech industry is conditioned by the fact that one of the strategic objectives of modern production is to provide a new generation with the manpower, the leaders of production who can not only purchase and adapt foreign models, but also but have the qualification to develop and introduce new home-produced samples, and also be able to quickly adapt to new social and economic conditions. Therefore, this article aims to identify the features of the advanced training of the future specialists for high-tech industry in the process of integration of education, science and industry. The authors have found the distinctive features of the institution providing the advanced training of the future competitive specialists; proposed measures for the development of advanced training; set the requirements to the syllabus and technology of advanced training; discussed the conditions for the implementation of the advanced training of the future competitive specialists in the condition of education, science and industry integration. The issues of this article are of both theoretical and practical value for the management and teaching staff of the vocational education institutions.

Keywords: *advanced training; integration; education; science; high-tech industry; future specialists.*

1. Introduction

General globalization leads to understanding the significant role of education and science in the development of modern society - the subject of the demand for a scientific result is not the industry but the education system. The system of education is where the intelligence of the community is built up - the most important resource, but the statistics show that

only a few percent of the scientific inventions and background knowledge of science is directly introduced into practice. Their main consumer is education. Absorbing scientific knowledge in the educational process the youth brings it into practical activities of the society, and in a highly competitive environment only 6 - 8 percent of the research is transformed into a new product or process (Erofeev et al., 2007; Ivanov et al., 2015; Shaidullina et al., 2015).

For the innovative mode of the economy development in Russia there are some necessary preconditions, namely: developed science, advanced production and technical capacity, and a good educational system. For example, advanced methods of vocational training development allowing to background the innovative projects and "breakthrough technology" in the industry have already proven themselves in the USSR high-tech innovation projects (uranium and rocket and space industry) (Moses and Burlyukina, 2007).

The urgency of the problem comes from the fact that, firstly, there is a constant updating of scientific and technical information, and secondly, there is a burning need for information not only about the past and present but also about the future and from the future when you need to make a decision basing on a set of exploratory and intended forecasts (Sakhieva et al., 2015. Consequently, the education system is facing dramatic changes at all levels with its transition to problem-based teaching that approach the practical needs of a modern economy where advanced vocational training of the future professionals is a major preventive measure for their adaptation and social protection.

2. Literature Review

The greatest scientific disagreements occur on the *subject of advance*, i.e. about the syllabus of the advanced education. Firstly, it seems natural to anticipate in education the changes in science, technology and social life that are most likely to occur in the near (or distant) future. However, the reality is that even a scientific forecast basing on a thorough analysis of the phenomena and development trends, unfortunately, in practice can fail badly. Moreover, it has been established that different methods often bring to diametrically contrary results at the stage of forecast. It is apparent what challenges the educational science faces when trying to build a model of the syllabus which will be demanded in a few years. "You cannot give the student the knowledge about laws, regularities, categories of nature and society that are scientifically unfounded. You can not reveal the operation principles of the techniques and technologies that have not yet been discovered (Novikov, 1998). Therefore, the principle of advancing from the "bottom", starting from a specific syllabus can be justified only in a limited number of educational systems and practices: when we are talking about the particular syllabus and a high probability of its demand from a particular cohort of students (career enhancement focused on the development of new technologies, retraining specialties with an obviously growing demand in the economy, studying foreign languages and information technology "for the future"; adaptive training of the convicts enduring the punishment, etc.).

The approach that seems deeper and more interesting from a scientific point of view and practically promising (albeit with a delayed effect) is the approach to advanced education "from above" shared by the majority of scientists dealing with this issue. Here, the fundamental elements of the advanced educational syllabus consider not the specific knowledge and skills but the general characteristics of an educated person, such as the development of general abilities, aptitudes, interests, and beliefs that contribute to human adaptation to changing life (Bim-Bad, 1998); the ability to use this knowledge to improve the activities (A.R. Shaidullina); the development of students' personality (Novikov, 2000; Levina, et al, 2015; Merzon, et al, 2015); basic general knowledge as well as ideological knowledge (Podobed and Maron, 2009); development of creative abilities, independent learning skills, the abilities to find solutions to complex problems (L.V. Zanin and others). The advanced education ultimately promotes the establishment of global, noospheric consciousness, "responsible mind" that can fathom the impending danger and does everything to prevent it (Subetto, 1998, 2000; Ursul, 2008, 2005).

However, the scientific study of the advanced education problem is currently carried out only at a general conceptual level. At the same time it applies to either the education system as a whole or school and vocational education in particular. The problem of advanced education of adults as such has still not been explored.

3. Methodological Framework

The very idea of advanced vocational education as an essential mechanism of the integration of education and production lies in the development of personal capabilities to define himself in the world of profession and his training for the rapidly changing production and sociosphere. The intensification of the advanced professional education, the degree of its manifestations also become prerequisite for the development of production due to the higher general and professional readiness of the possible applicants for certain vacancies, which makes the problem of training and

retraining for the ever-growing production less urgent.

Certainly, the education market is now increasingly appreciating not only highly skilled, but also erudite persons who can "extract" the necessary knowledge themselves and generate the new one easily. Particularly such all-around personalities bring to their firms the greatest profit, and therefore are highly- demanded in the labor market. These graduates can be called elite and be educated within the selected training course - a special system of teaching process and research work (Manuilov and Fedorov, 2002). Such training can be and is likely to be implemented not only in the elite, but any university that can concentrate the necessary resources within one or more areas of vocational training fields for the selected training.

In order to qualify the competitive highly-demanded professionals responsible for their own and corporate success the mechanisms of structuring the educational trajectories and curriculum, the implementation of the educational technologies should be aimed at the development of four major characteristics of an innovative personality: creativity, communication, competence and competencies (Lobatskaya, 2007). Meanwhile, one should be aware that for the different types and fields of innovation activities the correlation of the four "C" should take into account the level and susceptibility to one or another creative activity, that is, the natural creativity of the person:

- for the students who are prone to technical creativity (creative and innovative personality), capable of creating a new product and bring it to a final demand and assess the creations of other people who have the ability and desire to bring this product to implementation the educational vector must be focused on acquiring and developing communicative competence. The areas of demand for the professionals with highly-creative and innovative abilities are the applied science, education, production and business, and the specialty fades into insignificance;

- for the students who are prone to scientific creativity (innovation and creative personality) the educational vector should be focused on acquiring competence and developing creative abilities. These professionals will be in demand mostly in fundamental science and education, the institutions with a creative focus (Fayzullina and Saglam, 2014; Mrathuzina, et al, 2015);

-for the students who are prone to public social activities (public innovative personality), the educational vector should be focused on the acquisition and development of the communicative competence. These professionals will join the ranks of politicians, public figures, humanitarians of all areas involved in the social and political institutions;

-for the students who are prone to organizational performance (organizational and innovative personality) the educational vector must be directed towards the competencies and developing their own innovative creativity. These specialists will go the straightest way to business and production where they will take the role of reformers capable of giving boost to production / business to a high level and make any enterprise the industry leader.

The consideration of these models suggests that they fully correspond the existing social order for an innovative personality as the basis for a society developing through innovative technologies. The author offers the challenge of developing the national-level approaches to the designing of the educational programs on the basis of the individual training plans. However, to implement such a far-reaching goal it is necessary to provide the appropriate intellectual capacities as intelligence creates intelligence, and it requires certain conditions for its own reproduction that are in contradiction with the fact that the state funds education three times less compared to the Soviet times expecting more return than 30 years ago. Uneager to be left behind the developed countries the Russian state and society spend 10 times less per student than those countries and expect the results get higher (Plaksiy, 2005). Therefore, this work can be carried out in the elite university which will lead to the situation when "non-leading" universities will lose the opportunity to unlock the potential of the promising youth. The above-mentioned factors show that such education will be available only for a small part of population and will not bring Russia to the strategic objective associated with the creation of mass, high-quality, affordable and effective higher education the main objective of which is to provide the production with qualified personnel who can improve it in the post-crisis period.

It should also be mentioned that the establishment of the elite universities occurs mainly in the capital cities that are geographically distant from the enterprises. Many regional universities were established as technical colleges at the basic enterprises and have accumulated a sufficient experience and valuable links between educational institutions and industry the loss of which will affect the efficiency of these enterprises.

4. Results and Discussions

4.1 The particularities of an educational institution providing the advanced training courses

The main features of the institution conducting the advanced training of the specialists for high-tech industries are:

- Innovative education on the basis of a unitary training and research process with the use of interdisciplinary

problem- and project-oriented educational technologies;
- A system of the selected training of the specialists on the basis of the scientific schools;
- The integration of science, education and innovation;
- The established corporate culture and internal competitive environment of the university;
- The organizational structure relevant to the new tasks and methods of managing the educational institution based on the government and public management and autonomy;
- the developed infrastructure of interaction between the educational institutions and Russian and foreign environment.

4.2 The measures for the development of the advanced training system

The main goal of advanced training is to help the businesses survive the economic crisis, maintain the personnel and prepare them for the post-crisis innovation economy. To achieve this many regions of Russia have introduced a series of actions for the development of advanced training including:

- The development of a system to collect and analyze information about the need of enterprises and organizations in the advanced training opportunities and provision with the educational services required by the educational institutions;
- Improving long-term forecast for the balance between manpower and personnel demand with a due regard to the priorities of the Concept of the long-term socio-economic development up to 2020, including the appropriate areas for the advanced vocational training;
- Implementation of the order of development and certification of the professional educational programs to meet the employers' requirements within the uniform methodology (competence approach, modular design, innovative educational technology);
- Creating the infrastructure programs of the additional vocational education for the advanced training with various time scales to achieve the results at the educational institutions of various levels involving the resources of the industrial enterprises and organizations, business structures, research institutions;
- Introduction of the process monitoring and quality control of the results of the advanced training;
- Creating the infrastructure and the development of the regulatory framework of the regional certification system of professional qualifications (competencies).

4.3 The requirements for the advanced training syllabus

The idea of advanced education is to form a new human consciousness that will outpace the present, as for the advanced training of the technical specialist the traditional understanding of vocational education as mastering a certain amount of knowledge acquired through teaching particular subjects is clearly insufficient. Moreover, it is a significant drag on the ways in forming a new style of thinking of an engineer. The basis for the advanced education should become not the academic subjects but also the ways of thinking and acting, that is the procedures of reflective nature. Knowledge, methods of cognition and activities must be connected into the organic integrity.

Restructuring the training syllabus requires above all the fundamentalization of the education syllabus, formation of the innovative thinking and specialized training to transfer the technologies. These requirements equally apply to the research, design and entrepreneurship training.

Fundamentalization of the education syllabus can be achieved by broadening and deepening the interdisciplinary knowledge focused on problem solving in scientific, design and entrepreneurship activities; increasing the level of proficiency in cognitive, professional, communicative and axiological activities; providing the synthesis of the science and humanities and transition to the complex criteria of productivity, efficiency and work quality; the ability to develop the scientific basis of the social and professional activities by means of methodologization, generalization and different kinds of modeling (Chitalin, 2000).

4.4 The requirements for the advanced training technologies

The important issues of the advanced education are the teaching material and educational technologies creating the conditions for the development of the innovative thinking: multi-criteria problem statement and solution, nonlinear thinking, sustainable skills of possessing information culture and others.

Any modern high-tech production is characterized by the development of modern technology of information

accumulation and transfer; the development of new microelectronic technology and modern means of automation, improving the automated controls that allow to dramatically increase the competitiveness and efficiency of domestic production; the development of laser technology, new methods of processing materials; the transition from the conveyor mass production to the flexible automated one; the improvement of security as a complex character of the man-machine systems in the unity of technical, socio-psychological, cultural and ethical aspects; overcoming the ecologic limitations through the integration of production and nature restoration processes into a single process. Consequently, the modern enterprises together with the educational institutions should be actively involved in the training of technical specialists for high-tech industries, as training of the specialists only in the walls of the institution is not possible, because they need specific practices and a large amount of practical training.

In this regard, the high-end technologies of education become the new scientific and methodical focus of didactics and their principal difference becomes the sign of advanced training, research and methodological activities as "pedagogical reconnaissance." In other words, the high-end training technologies are the creation of " design and experimental patterns" in the field of education and demonstration of their effectiveness as benchmarking.

The principles of high-end training technologies are: compliance of the advanced education technology with the modern sanitary and technical standards, noncontradiction to the humane and moral objectives of the education of the society, efficiency and democratic character of education with opportunities for the general population to get education (Pokholkov, 2003).

In this regard, it is necessary to develop a new approach to technical education since the first year of education in university, and show the students the relevance of the proposed educational material to their future engineering activity, prospects of the technological, economic and social development of the community. This teaching method allows the students to develop the motivation to study that is so much needed, a greater receptivity to the theory while developing it through practice.

One of the promising methods used in the advanced technical education is "context teaching " when the motivation for knowledge assimilation is achieved by building relationships between the specific knowledge and its application. This method is quite effective, as the aspect of application for students is crucial. Equally important is the "learning from experience" when the students have an opportunity to associate their own experience with the subject of the study. These methods are considered active learning methods, since the focus is on the students' acquiring knowledge through various activities and on the basis of experience.

The problem-oriented approach to education allows students to focus on the analysis and solution of any particular problematic situation that becomes the starting point in the learning process. It is sometimes important to not only solve the problem but to put and articulate it correctly. The problematic situation motivates the students to consciously acquire knowledge necessary to solve it. The interdisciplinary approach to learning allows to teach students to get knowledge from different fields by themselves, to group them and focus in the context of the specific problem to be solved.

Another effective and promising way is to use the so-called «case-study» methods based on the analysis of true-to-life situations from engineering practice, management, organization of production and further developing relevant ideas and solutions.

It is important in the advanced training of technical specialists to apply the project technologies of training in a work-team (targeted, role, creative groups). This creates conditions that closely follow the real engineering, and thus, the students gain experience in solving the complex problem of engineering design with the roles distribution and responsibilities between the team members.

To correlate the training of the technical specialists with the production requirements it is necessary to optimally adjust the activities of the university or college that should be carried out at a regular intervals in connection with the production and in turn would provide:

- The possibility of writing the term papers and graduate studies at the enterprise;
- A combination of education and production activities, classroom training and practical work in the offices, manufacturing workshops;
- A certain control over the trainees by the company's management which encourages responsibility, integrity, conscientiousness of the students' learning activities;
- Encouraging the active learners, attracting them to work in groups of experts for possible employment.

4.5 The terms of the advanced vocational education

The conditions for the advanced vocational training are the following: the readiness and active participation of the teaching staff in the innovation activities of the vocational education institution; the integration of the research, education

and innovation; a corporate culture and internal competition within a vocational educational institution ; the organizational structure that corresponds the new tasks and methods of managing educational institutions basing on a combination of public, government and public administration and autonomy; the developed infrastructure of interaction between the educational institutions and Russian and foreign environment; updating the content on the basis of the world's information resources; integration of the entrepreneurial ideas in the courses syllabi; the use of interdisciplinary problem-and project-oriented educational technologies; the rating system improvement and others.

5. Conclusions

The advanced training of the specialists able to effectively implement the innovative projects is the objective of the national Russian priorities where the utmost importance should be given to the following:

- it is necessary to sustain the continuity of the traditional approach in the national system of training of the future engineers which has a deep tradition and undoubted successes in designing the advanced engineering education;
- there emerged a need for a modern model of the advanced education with remarkable changes at all levels with the transition to problem-based teaching closer to the practical needs of a modern economy where the advanced vocational training of the future professionals is a major preventive measure for their adaptation and social protection;
- the important constituents of the advanced education syllabus should become the teaching material and educational technologies creating conditions for the development of the innovative thinking with a high level of methodological culture;
- in order to accomplish the innovative projects it is necessary to provide greater integration of science, education and industry and corresponding intellectual capacity.

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Scientific and Methodic Basis for Monitoring of Professional Readiness of the Future Teachers to Communicative Language Development of Preschool Children in a Dialogue of Cultures

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Abstract

The urgency of the problem under investigation is due to the need to develop innovative technologies and approaches to the professional development of students and their optimal willingness to solve the goals and objectives of bilingual education of preschool children in a dialogue of cultures and multilingualism. In this case there is a particularly acute problem of scientific and methodic support for monitoring of their readiness for communicative and language development of bilingual preschool children. The article aims at disclosing the content and theoretical basis for monitoring of professional readiness of students to communicative language development of bilingual children in the profile "Pre-school education" in the Chuvash Republic. The major approaches to the study of the problem are systematical, personal, activity, polysubject (dialogic), culturological, ethnopedagogical. Overall the results suggest the viability of the proposed scientific and methodic support for monitoring of professional readiness of students in the profile "Pre-school education." The article's materials may be useful in identifying the professional readiness of the future teachers of pre-school education to the communicative and language development of preschool children in the educational system of higher education.

Keywords: *vocational training; professional readiness; communicative and language development; monitoring; bilingual children; competence-based approach.*

1. Introduction

1.1 Relevance of the research

The Law on Education of the Russian Federation, Federal State Educational Standard of preschool education, teacher's professional standard and other regulations require universities to prepare professionals who are able to solve fully and comprehensively the problems of communicative and language development of preschool children and their bilingual identity with the regional component of education. Despite the fact that new Federal State Educational Standards of higher education are introduced in all the universities, which provide bachelor's and master's degrees, have not yet been generalized organizational and methodic aspects for monitoring of graduates' readiness to the communicative and language development of preschool children in a bilingual and dialogic cultures. Due to the high requirements for the qualification of teachers and their responsibility for the results of labor, the criteria for evaluating their professional readiness for pedagogical activity, in particular for the communicative language development of bilingual preschool children become complicated. In the Federal State Educational Standards of higher education the regional component is proclaimed as a key and important condition for training future teachers, which involves consideration of such defining

features of the region's culture, as multi-ethnicity, poly-confessionality, dialogue of cultures, cultural relativism, tolerance, openness, ability to cultural adaptation, etc. This is supported by studies of G.P. Zakharova, who writes that the Russian education is built on the principle of the dialectical unity of national, federal and global components. This promotes the formation of each child's ethnic identity (Zakharova, 2014). In this ever-changing multicultural society national cultures and regional educational systems develop and cultural identity of each child is taking place . In this regard, many researchers have noted that in the process of development the child learns a particular cultural identity. However culture conformity of multicultural environment of its formation and development implies cultural poly-identity. For example, there are more than a hundred ethnic groups in Russia and all of them are represented in the structure of education. Therefore, the education according to its content is national, poly-cultural, and as for the means (forms, methods, technologies) it is multicultural simultaneously. Culture was originally developed in the mode of self-organization and education is developed on the basis of tolerance, equality and integration of cultures. In this context, G.P. Zakharova speaks of polychrone cultural space, which she explains as operation in a particular time and space of subjects (individuals or social communities) of different cultural ages. And that, in her opinion, sets a unique context for the functioning of the educational system: if education qualifies for culture genesis functions, it should be culture congruous. But as every modern culture is polychrone, the educational model has no right to be unified and monolithic – taking into account its participants' cultural age, it should be a variable one. The principle of variability of pre-school education reflects such a feature of modern culture as multiculturalism and being polychrone (Zakharova, 2014).

1.2 The experience of the Chuvash Republic

On the territory of the Chuvash Republic for many centuries the interaction of different cultures took place, so it has the striking features of "border culture". The results of the National Population Census in Chuvashia showed that 115 nationalities representatives live here. However, there are four most numerous ethnic groups: Chuvash, Russian, Tatar and Mordvinians. According to the same data, the following nationalities representatives live in Chuvashia: Belarussians, Armenians, Azerbaijanis, Tajiks, Gypsies, Uzbeks, Germans, Moldavians, Udmurts, Jews, Bashkirs, Georgians, Kazakhs, Chechens, Greeks, Poles, Arabs, Koreans, Lithuanians, Estonians, Vietnamese, Chinese, British, Japanese, Americans and others. The most common languages in the country are Russian, Chuvash, English, Tatar, German, Mordovian, French, Armenian, and language of the deaf. Rare languages, but used in speech are Rutul, Selkup, Thai, Evenksky, Nenets, Vepsian, Udi, Abaza, Adyghe, Amharic, Chukchi, Bengali and others.

Due to the fact that the language of the deaf in our country is one of the common languages, it becomes apparent that it is necessary to strengthen the correctional (defectology) training of future teachers.

1.3 Literature Review

Modern preschools in Chuvash Republic are characterized by polyethnicity, causing preschools' workers certain difficulties in the organization of upbringing and educational work with children as well as in the communicative language development of bilinguals. They have to take into account the cultural and linguistic specificity of child development and to train a second language based on comparative-typological characteristics of the languages in contact, their identity and the grammatical structure of the interfering influence of the native (Chuvash) language studied (Guseva, 2011; Ivanova, 2014). Among the students, who study on the profile "Preschool Education", dominate Chuvash-speaking students with the knowledge of the Russian language. Then - Russian-speaking students, who do not speak Chuvash language, Tatar-speaking students with the knowledge of Russian language. There are Mari students with the knowledge of the Russian language, Turkmens with poor knowledge of the Russian language, and others. The most common mother tongues of students are Russian, Chuvash, Tatar and Mordovian languages. However, among the non-native languages most widely used English, German, French.

According to the results of numerous studies of bi- and multilingualism held by G.A. Anisimov (2006), T.S. Guseva (2011), N.V. Ivanova (2014) and others, an incomplete type of bilingualism is typical for our country, which is characterized by receptivity / reproduction, the confusion of languages, mediation, subordinativeness / coordinativeness. For example, in rural areas bilingualism is passive, in cities bilingualism is on the contrary dynamic. With regard to national educational institutions bilingualism is considered within the framework of sequential bilingualism (Ivanova, 2013).

Considering the fact, that bilingual children joining another language complicates and slows down the development of speech (from minor irregularities in the sound design to the violations in the lexical and grammatical structure), T.N. Semenova's approach to the consideration of the teacher's readiness to work on the development and correction of

speech of preschool children with the help of ethnopedagogics in a multiethnic environment is very interesting (Semenova, 2014). So, T.N. Semenova in defectological readiness of the future teacher identifies three interrelated components combined into an integral whole. Firstly, the motivational evaluative component, which implies future teachers-defectologists' awareness of the place and role of folk pedagogy in education of preschool children with speech disorders. Secondly, the cognitive component, which implies the existence of future teachers vast range of scientific knowledge about the methodology and methods of work on the development and correction of speech by means of folk pedagogy. Thirdly, the activity component, expressed in the future teachers' formation of professionally significant competences required for the application of ethnopedagogical means in training and education of preschool children with speech disorders (Semenova, 2014).

Thus, it becomes evident that cultural and anthropological approach in the training of future teachers to the communicative and language development of bilingual preschool children should become backbone.

The use of competence-based approach in today's higher education strengthens focus on educational outcomes, which includes the development of science-based system for monitoring the quality of training of future teachers for their professional activities in a dialogue of cultures.

2. Methodological Framework

Reforming of higher education, dynamically changing socio-economic and socio-cultural conditions of the development of modern society led to the need of scientific and methodic support for monitoring of professional readiness of students to communicative language development of bilingual preschool children. As rightly pointed out in the order of the Ministry of Labor and Social Protection of the Russian Federation dated October 18, 2013 № 544n, training of future teachers should be redirected to the new realities of the education system - the need for professionals who are ready for change, mobile, capable of non-standard employment actions, responsible and independent in decision-making, and most importantly "constantly showing their students how to learn."

The scientific and methodological basis for monitoring the professional readiness to communicative and language development of bilingual preschool children made traditional and innovative concepts of training teachers in humanitarian institutions of higher education. In particular – competence-based, personality-oriented, cultural, anthropological, system-optimizational, axiological, personality and activity, acmeological, system-holistic approaches, the concept of quality education system diagnostics, examination of the concept of human education, forecasting methods, and others.

In the opinion of Ivanova N.V. training involves purposeful, systematic and controlled process, the result is the formation of professional readiness composed of professionally significant competences of teachers in the relevant field of language development of bilingual preschool children (Ivanova, 2013). This understanding of training in our study becomes a key one. Therefore, monitoring of professional readiness of the future teachers to communicative language development of bilingual preschool children at the university should be focused not only on the assimilation of professional competence, but also on the professionally significant personal qualities, which are essential components of professional readiness and professionalism. The term "professional readiness" in the scientific literature is used to express the imposed requirements to the teacher. Along with this concept the term "professional qualifications" is used. In our opinion, professional readiness of the teacher is a central concept that expresses the ultimate goal of education and is a complex, systemic, holistic education, the result of the interaction of all educational systems operating in high school (Slastenin, 2003).

Often the term "professional qualifications" is understood as a set of mental and psycho-physiological characteristics of a person needed to succeed in their chosen profession and includes the knowledge, skills and abilities. Therefore, distinguishing of psychological, scientific and theoretical, psycho-physiological, physical and practical readiness of the teacher in its composition is justified.

The majority of scientists believe that readiness is a "predisposition of the subject to focus its activities in a certain way," "it is a special state of mind and a relatively stable personality characteristics" (Slastenin, 2002).

Consequently, professional readiness of the teacher to communicative language development of bilingual preschool children in various educational institutions is the main indicator of their training, the quality of their personality and factor in the success of their professional activities.

Psychological readiness for professional work is often considered as a mental state that is formed in the course of training. Therefore, it is considered in two aspects: 1) as a factor and condition for successful vocational education; 2) as a result of training.

In the opinion of S.V. Veliyeva, the psychological content of the concept of "professional readiness" is based on individual characteristics such as its ability to professionally significant qualities (Veliyeva, 2014).

Professional readiness of the teacher is a complex, integrative personal formation (Veliyeva, 2014) in the framework of fundamental humanitarian settings. Therefore, when developing a monitoring system of professional readiness of the future teachers to communicative language development of bilingual children is very important to use appropriate means to identify personality characteristics and the level of psychological readiness. For psychological readiness and personal qualities are stable, steady properties acting consistently and are an important prerequisite of successful professional and innovative work of the teacher (Veliyeva, 2014).

Professionalism of the teacher is a concentrated indicator of his professional readiness and his personality-activity essence. This qualitative characteristic of professional readiness, in the opinion of many researchers, shows the level of the development of the teacher's competence. Therefore, teacher's professionalism, which solves the problem of communicative language development of bilingual children will be expressed by the formation of their competence in matters of bi- and polylingual education of preschoolers, by the degree of ownership of theoretical and practical knowledge and methods of solving professional problems caused by civil responsibility, maturity and professional duty (Gabdulkhakov , 2009). However, the measure of professionalism in the training of teachers in high school is almost impossible.

According to V.F. Gabdulkhakov (2009) professionalism is the result of the creative pedagogical work of the teacher, carried out at a very high level of labor productivity. We believe that professional teacher should know what and how to teach and raise a bilingual child, and also be able to transfer him from one state to another. In the structure of professionalism they distinguish (in particular, Gabdulkhakov V.F.) three interrelated components - professional knowledge, professional communication, professional self-improvement. However, if one of these components is not formed, the teacher's professionalism will be ill-formed as a whole (Gabdulkhakov, 2010).

Therefore, the main and most important task of training future teachers to communicative language development of bilingual preschool children is the formation of all the necessary competencies to develop their professionalism in future practice.

By professional readiness of teachers to communicative language development of bilingual preschool children, we understand the integral phenomenon that combines pedagogical, psychological, linguistic, linguodidactical, cultural, anthropological, creative readiness and willingness to carry out educational activities in an inclusive and innovative process.

Idealized personal and professional qualities that make professional readiness of the teacher to communicative language development of bilingual preschool children, can be represented as a profession diagram or passport of competencies.

Substantial characteristics of a graduate's professional readiness defines a set of competencies that are formed as a result of studying the corresponding cycles of academic disciplines, united in educational modules that are built on the basis of subject-activity approach. The model of a graduate as a qualitative characteristic of a result of education is introduced on the basis of competence-based approach. A key component of competence is knowledge. But today, the role and importance of knowledge in the modern teacher education is justified by the change of its functions - adaptational, informational, action-developing. Adaptational aspect of the content of knowledge is linked with the goal setting (for what purpose the knowledge is developed, feasibility of its mastering from the standpoint of value-semantic implications for the future profession is being revealed). Informational function provides the volume and the relevance of knowledge. Activity-developing function characterizes the quality of the mastered knowledge in its practical importance. In the context of these values of contemporary knowledge, its role in activity-model of professional and social activity of the future teacher is being changed.

However, according to G.P. Zakharova (2014), M. Yu. Deryabina (2009), it is not knowledge addressed in the past "what and how to do" (instructional model of learning), but it is competence, facing the future (creative (innovative) learning model), rising to the result of the pedagogical process. Appeal to the results of the pedagogical process enhances learning practical orientation, its subject-practical orientation, emphasizes the role of experience (student-centered, subject-directional, dialogic) to solve specific educational tasks. The prospects of this direction we associate with the actualization of students' skills for self-organization of activities (educational, cultural, educational, and others.) as the basis for the success of the professional competence of the future teacher (Zakharova, 2014; Deryabina, 2009).

There are three interrelated components in the structure of pedagogical activity: structural, organizational and communicative. Therefore, the future teacher should possess the skills of structural, organizational (management) and communicative activities.

The most acceptable, in our opinion, is the concept of V.A. Slastenin to identify the key components of professional readiness of the future teachers to communicative language development of bilingual preschool children (Slastenin, 2003). Therefore, the key components of professional readiness of the teacher to communicative language development

of preschool children in a dialogue of cultures are the following interrelated components: motivational-evaluative, cognitive and activity, which are formed, developed and improved with the scientific and theoretical and practical training at the university.

Nowadays, there is no uniformity in the understanding of bilingual competence, as well as a clear separation of the concepts of "competence" and "competency". Competence is viewed as a predetermined requirement for the training of future teachers needed for communicative language development of bilingual children, and competency - as a personal quality, which manifests itself in its ability to carry out this work (Ivanova, 2013).

The use of a competence-based approach in today's higher education reinforces the emphasis on learning outcomes.

A recognized authority in the field of modernization of European education Adam S. (2008),having carried out the analysis of various definitions of "learning outcomes", recommends to identify the results of training related to the achievements of the student. Therefore, the system of monitoring of the quality of professional readiness of the future teachers for communicative and language development of children in situations of bilingualism should be focused on the progress made by the student, and not the learning objectives, which are caused by the intentions of the teacher.

Competence-based approach in the process of training future teachers forces us to abandon traditional methods of monitoring learning outcomes that take into account a set of didactic units and the number of hours. Methods focused on formed competencies, should be used in the monitoring system of professional readiness of future teachers.

Thus, developing the basic tools, methods and ways of monitoring of professional readiness of the future teachers to communicative language development of preschool children in the conditions of the dialogue of cultures it is necessary to shift the focus from the content of the training on the result.

The project TUNING allocated two types of learning outcomes: minimum requirements and expected learning outcomes. Here are some examples that illustrate the use of the competence format for the introduction of expected learning outcomes according to Federal State Educational Standards of higher education direction 050100 Teacher education profile "Pre-school education." For example, the learner is able to demonstrate a culture of thinking, the ability to generalize, analyze, perception of information, goal setting and choice of ways to achieve it (CC); the ability to analyze the ideological, social and personal significant philosophical problems (CC 2); the ability to understand the importance of culture as a form of human existence and to be guided in its work by modern principles of tolerance, dialogue and collaboration (CC 3); willingness to tolerant perception of social and cultural differences, respectful and caring attitude for the historical heritage and cultural traditions (CC 14); the ability to identify and take advantage of regional cultural educational environment for the organization of cultural and educational activities, and others.

System-optimization approach to the training of future teachers (Lukyanova, 2004), which is a complex system of training teachers for communicative and language development of bilingual preschool children on the basis of its optimization is very important for our work. This approach implies the possibility of choosing the optimal education program among available variable educational programs in conformity with the needs of students, their prospects for professional growth, focused on the formation of their professional competence taking into account the needs of the region.

Thus, the professional readiness of the future teacher for communicative and language development of bilingual preschool children on the basis of studied approaches reflects his professional competence, which appears to us as a set of universal values, professional and humanistic orientation, formation of professional and personal qualities, knowledge of modern technologies, the development of communicative speech skills in bilingual children. Professional competence of the future teacher for the speech development of bilingual children contains regionally-mediated competencies.

3. Results and Discussions

In accordance with the modern understanding of the quality of education and the concept of humanitarian examination of the results monitoring of professional readiness of the future teachers to communicative language development of bilingual children is aimed at determining the dynamics of professional and personal growth of students, taking into account their characteristics, attitudes towards their future profession, achieved results and correction of the content-technological support in their training.

As the basis for the design of monitoring of professional readiness of the future teacher for communicative and language development of bilingual children we took a five-component structure of personality:

1) orientation of the person (settings, motives, interests, desires, expectations, etc.);
2) professional competency (knowledge, skills or competences);
3) personal qualities (reflexivity, creativity, attention, observation, determination, tolerance, sociability,

independence, hard work, etc.);

4) professionally significant physiological properties (energetics, neuroticism, extroversion, visual-motor coordination, reactivity, etc.)
5) bilingual competency (a set of communicative and linguistic competence of native and non-native languages).

The main criteria of formation of students' professional competency are the cognitive, motivational, affective and behavioral.

Monitoring of professional readiness of the future teachers to communicative language development of bilingual children is implemented at two levels: internal and external. Internal level involves monitoring of professional readiness within the institution and is based on the following criteria: level of pedagogical reflection and self-education of a student; motives of mastering the teaching profession; satisfaction with the educational process; professional and personal growth; relevance of research works of students in the field of education and upbringing of the university and the region; development of social and cultural environment of the university. External level of monitoring aims to study: 1) the demand for pre-school education in the region in professionally-trained teachers for communicative and language development of bilingual children, 2) indicators of competitiveness and mobility of graduates in the market of educational services and educational activities.

In accordance with the requirements to the organization of monitoring and evaluation, compliance with which is considered to be necessary in the context of result-oriented competence-based approach, the monitoring system of professional readiness of the future teacher for communicative and language development of bilingual preschool children contains adequate methods of monitoring and evaluating material in the phase of results formulation. The most important condition of monitoring is the complexity and functionality of traditional forms of control (current, landmark, intermediate and final).

Monitoring of the quality of training is focused on the following objectives: 1) control using a set of assessment means for students' knowledge acquisition processes, skills, general and professional competences; 2) management of the vocational training.

Selection of individual traditional and innovative forms of control is carried out in accordance with the technology of teaching disciplines, teaching styles and the feasibility of the implementation of various forms of control. Thus, the system of monitoring of the level of future teachers' professional readiness for communicative and language development of bilingual children involves the following traditional forms of control - oral questioning (tests, exams, interview, colloquium, etc..), written assignments (essays, tests, reports, essays tests, term papers, research reports on educational practices, reports on the Research Works of Students et al.), with the help of technical means of verification. Innovative assessment means such as: portfolio, presentation, a landmark certification tests, practical skills tests, questionnaire surveys and some others are very popular. These types of controls are used as a complex and independently as specific types of control. The rating system, realized in high school , is a good tool for the evaluation of professional readiness of the future teachers to communicative language development of bilingual children.

4. Conclusion

The content of the scientific and methodic support for monitoring of professional readiness of students to communicative language development of bilingual children in the profile "Pre-school education" in the Chuvash Republic, proposed in the article, complies with the following principles: conformity of the content of training to the general and disciplinary objectives of professional training; the unity of its substantial and procedural sides; structural integrity of the content; orientation of its content for the implementation of the systematic, personal, activity, polysubject (dialogic), cultural approaches. Some of the theoretical and practical aspects are studied and summarized, the scientific substantiation of organizational methods of monitoring of the future teachers' professional readiness to communicative language development of bilingual preschool children is given.

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The Formation of Civic Identity among Schoolchildren

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Abstract

The relevance of the research problem is due to the happening socio-cultural changes in the world, when in the conditions of polyethnicity and multiculturalism of the countries there are difficulties with the consolidation of citizens and establishing the dialogue on the principles of equality and mutual respect. The purpose of this article is to clarify the content of civic personal identity, and based on the analysis of the existing world experience of civic education of students, to present own program of forming civic identity among schoolchildren. This paper presents the content of each of the components of the civic identity of a person (cognitive, value-oriented, emotionally-evaluative, behavioral) in three aspects: ethnic (regional), civil (national) and general cultural (universal human), the author's program of the students' civic identity formation is presented. The contents of the article can be useful for school teachers and instructors of teacher education universities in preparing the relevant classes for the students.

Keywords: *identity; civic identity; high school students; civic education; schoolchildren.*

1. Introduction

Global socio-cultural, political and economic changes, the increasing number of multiethnic and multicultural by their composition countries, frequent cases of interethnic, intercultural and inter-religious contradictions put before all states of the world the task of consolidating their citizens, establishing the dialogue based on the principles of mutual respect and tolerance.

So, in the founding documents of the Russian Federation in the sphere of national policy – a Strategy of the state national policy of the Russian Federation for the period up to 2025 (2012) and the national security Strategy of the Russian Federation up to 2020 (2009) – the objectives of strengthening the unity of the multinational people of the Russian Federation (the Russian nation) are set, that will solve the problems of promoting the formation and development of all-Russian civil patriotism and solidarity; will contribute to the preservation of ethno-cultural diversity of the peoples of Russia, as well as will ensure the harmonization of inter-ethnic and ethno-confessional relations.

In such circumstances, the task of constructing an appropriate system of education becomes urgent. In the Russian Federation in the Federal state educational standard of secondary (complete) general education (2012) its focus on ensuring the formation of the Russian civic identity of the students is stated, their upbringing and socialization, self-identification through personally and socially valuable activities, social and civic development.

Similar objectives are also set before foreign systems of education aimed at the formation of such a member of the society, who would be independent, responsible for the consequences of his/her actions, fulfilling the moral and legal

obligations of a member of the society. Among the most important qualities of such a person there is respect for human dignity noted, as well as for the opinion of others, civil behavior, serving the interests of the fellow citizens and respect for the principle of majority with the recognition of the right of minorities in dissidence, critical thinking, independent judgment, civic engagement, initiative (Fakhrutdinova, 2010; Kozhanov, 2014).

2. Methodological Framework

The leading approaches to the formation of civic identity among schoolchildren are: axiological, humanistic and ethno-cultural.

2.1 The axiological and humanistic approach

In the basis of the axiological and humanistic approaches there is the idea about a man as a value and purpose of public and educational process. At the organization of educational work and at the adherence to national specifics the following hierarchy of values can be suggested: universal human values; universal national values; local values; traditional values of a certain educational institution; individual values, representing the area of the greatest freedom, diversity and flexibility.

2.2 The ethno-cultural approach

The ethno-cultural approach in the context of our research involves the interdependence of the culturological, multicultural and ethno-pedagogical approaches. The culturological approach is based on the fundamental concepts of "culturally congruent environment" and "the dialogue of cultures"; the multicultural approach – is based on the theory of multicultural education; the ethno-pedagogical approach – is based on progressive pedagogical ideas of different peoples. Creation of culturally congruent environment is becoming the main tool of educating (a set of external conditions), which is the most favorable for a person's self-realization as a member of a particular national culture and involving extensive interaction with other cultures and their representatives on the basis of mutual respect, tolerance, and dialogue. Forms, methods and means of educating should respond to national traditions, rely on the accomplishments of ethno-pedagogy, and at the same time ensure access to universal human values that to some extent is reflected in the theory of multicultural education.

3. Literature Review

This section is devoted to consideration of the various definitions given to the terms "identity", "civic identity" and to the definition of the components of an individual's civic identity.

As O.A. Borisova notes, identity − is a broad concept that includes all the qualities of personality combinations, due to a large array of biological, psychological, social, and cultural factors (Borisova, 2006).

Turning to the category of "identity", it is necessary to be aware of the ambivalent nature of this phenomenon, designated earlier by E. Erickson. He saw identity as something ambiguous. On the one hand, this phenomenon is static, i.e. it "reaches the climax in its development and gets some integrity and completeness in the pubertal period", on the other − permanently dynamically, "we can see identity as constantly changing until the very end of life, never remaining unchanged" (Erickson, 1996).

In philosophy the term "identity" (from lat. identificare – to identify, late lat. identifico – I am identifying) is defined as "... correlation of something (having self-presence) with oneself in the connectivity and continuity of the inherent variability and conceivable in this capacity" (World encyclopedia: Philosophy of the XX century, 2002).

D.V. Telegin, and G.V. Telegina (2009) indicate that under the identity the identification of certain individuals or social groups is usually understood, with a particular role in the process of social interaction, the association of themselves and others with a particular place in different "worlds" of social communication. Accordingly, we can talk about individual or collaborative, social and/or cultural identity, although in practice an identity is likely to be a complex hybrid form, as a result of complex social interactions.

E. Goffman wrote earlier about different kinds of identity, he distinguished a social identity when it comes to personality typing based on the attributes of the social group to which it belongs, a personal identity, composing a set of unique qualities and properties of an individual together with his unique life story, and the I- identity, that represents the individual's subjective feeling of his/her own life situation. The scientist pointed to the fact that one of the types of the

social identity is the civic identity (Antonova, 1996).

In the modern politological dictionary the following definition is given: “Civic identity is a part of the social identity of an individual and reflects the views of the individual on the belonging to a public education, civil society structures, as well as the ideas of the entities and structures themselves, their assessment by the individual and his right to remain in their composition or to leave them” (Danilenko, 2000).

A.G. Asmolov says about the civic identity as of "the awareness of the individual of his/her belonging to a community of citizens of a particular state on a general cultural basis” (How to design universal educational actions in elementary school, 2011). Herewith the researcher notes that the civic identity has a personal meaning, defining a holistic attitude to the social and natural world.

Vilkova I.V. notes, that the concept of "civic identity" brings together philosophical, social and political-oriented categories and is expressed in the personality’s awareness of belonging to the community of citizens of a particular state, willingness and ability to perform the associated with the presence of citizenship duties, to enjoy the rights, to take an active part in the life of the state (Vilkova, 2012).

4. Results

4.1 Components of a person's civic identity

In the civic identity we can identify the following structural components: cognitive, emotionally-evaluative (connotative), value-oriented (axiological), activity (behavioral).

Despite the unity of views to the definition of structural components, there is a different understanding of the content of civic identity. So, A.G. Asmolov (How the civic identity in the world of education comes into being, 2011) examines civic identity as a set of such components as ethnic (or regional) identity, general cultural (or universal human) identity and, as such, civic identity.

Also, just like A.G. Asmolov (2011), A.A. Leontiev (2001) distinguishes three levels of civic identity (regional (ethnic), national, global), which are formed simultaneously. As a basic condition the scholar highlights the unity in the formation of the three fundamentals of a citizen’s consciousness in the new Russia:

- the sense of belonging to their ethnic group, love and respect for national traditions and history of their people, language and culture;
- the sense of belonging to the multinational Russian society, Russian patriotism, coupled with the rejection of ethnic exclusivity and acceptance of responsibility for the fate of their people and their multi-ethnic country;
- the sense of belonging to a world community and taking responsibility for the fates of the whole world (Leontiev, 2001).

In accordance with the above aspects of civic identity and the specified structural components we define their content.

The cognitive component:

- the ethnic constituent − knowledge, ideas and concepts about the homeland people, their history and culture, as well as the history and culture of other nationalities; understanding of their ethnicity; knowledge of their mother-tongue;
- the all-Russian constituent − is knowledge about the state system of the society and the institutions of the government, the legal basis for the organization of the society, the state symbols, the fundamental documents, the history and culture of the Russian Federation, the knowledge of its peoples and the existing denominations.
- the general cultural constituent − is knowledge about the states of the world, their history and culture, major religions of the world; knowledge of laws, rules and regulations imposed in any country of the world; knowledge of conflict-free interaction in the conditions of multicultural environment; knowledge of the basic principles and rules of attitude towards nature, fundamentals of environmental protection and natural resource management; knowledge of healthy lifestyles and health care technologies basic principles.

The emotionally-evaluative (connotative) component:

- the ethnic constituent − is the attitude to their ethnicity; attitude towards the ethnic values of their own people; value judgments regarding attitudes to their people and other nationalities, their representatives; attitude towards the mother-tongue;
- the all-Russian constituent − is the attitude to their belonging to the Russian society, to the ongoing socio-

political events, to other citizens of Russia; attitude to the laws in force in the Russian Federation, to the system of civil values;

– the general cultural constituent − is the attitude to their belonging to the world community, awareness of oneself as "a man of peace"; and the attitude to the general cultural (universal human) values.

The value-oriented (axiological) component:

– the ethnic constituent − is the presence or absence of the formed system of ethnic values;
– the all-Russian constituent − is the presence or absence of awareness of the value of the state as a guarantor of a citizen's rights; the presence or absence of the formed system of civic values;
– the general cultural constituent − is the presence or absence of the formed system of general cultural (universal human) values.

Behavioral (activity) component:

– the ethnic constituent − is the use of the mother-tongue in communication; the manifestation of the inherent to the homeland people behaviours, the nature of actions towards the representatives of the native land people and other nationalities;
– the all-Russian constituent – is the participation in public and political life of the society; the nature of the actions towards the citizens of the Russian Federation;
– the general cultural constituent – is the participation in productive work for the prosperity of the global community and for personal self-realization; respect for the natural environment; the ability to conduct a dialogue based on equal relations and mutual respect and acceptance; the ability to constructively resolve conflicts; maintaining of a healthy lifestyle (Kozhanov, 2013).

4.2 The program of forming the civic identity among schoolchildren

The program of forming the civic identity in schoolchildren is developed on a modular basis. Each module has its own range of the students involved, its methods and forms of organizing the process of forming the civic identity of an individual. However, the modules complement each other and are aimed at all-round formation of each of the aspects of an individual's civic identity.

Module 1 "Academic disciplines" is aimed at forming the younger students' basics of civic identity and the primary and secondary (complete) school students' − civic identity in the framework of the studied disciplines.

Module 2 "Classroom hours" implies thematic classes and interviewing the students held by the supervising teachers, aimed at the formation of the civic identity. The duration of the class: elementary grades − 40 minutes, 5-11 grades − 1 hour.

Each class includes a problem statement (mini-discussion), a mini-lecture or performance of students and training of the interpersonal (intercultural) communication.

Sample topics of the classroom hours:

- (1-4 grades) "the Story of my name", "there it is, my Homeland is big", "the Tale is a lie, but it hints ...", "Heroes of the homeland people", "the Miracles around us", "Kaleidoscope of professions: the past is in the present", "My people and I" and others;
- (5-9 grades) "We are united and unconquerable", "National covenants", "Homeland culture every day", "We have something to be proud of", "Law and order", "My civic duty", "Behavioral philosophy for every day", "Expanding the boundaries", "My contribution" and others;
- (10-11 grades) "Crime has no nationality", "I − am a person, we – are a group", "Everything is in our hands", "A senior high school student – is a person of culture!", "Career and self-development", "an Act", "Personal dignity and honor", "Internationalism and nationalism in the modern world", "the Threats of the future", et cetera.

Module 3 "Interest groups and clubs" is aimed at creating favorable conditions for forming the civic identity of an individual through the high school students' involvement in activities of the groups and clubs of ethno-cultural style, functioning at the school in the following areas: artistic-aesthetic; applied; eco-tourism; sports.

Module 4 "School associations and social design" provides the students with the opportunity to reveal their social potential, gain experience of socially-useful activities, practice of decision making and their implementation both as part of the school self-management, and in the process of preparation and realization of social civic-oriented projects.

Examples of possible social projects:

– "The binding link of times" (the younger generation's study and acquisition of values and cultural traditions of the established families, the promotion of the family leisure cultural education);

- "Cheboksary – is a clean city" (organization and carrying out environmental activities on cleaning and beautification, Cheboksary);
- "Reviving our forest" (taking part in planting trees);
- "Reviving the traditions of the peoples of Russia" (the study of the advocacy and reproduction of the cultural traditions of the peoples of Russia);
- "We remember! Proud of it! Inheriting it!" (organizing meetings with veterans of the Great Patriotic war, providing them with possible assistance, compilation of a video archive of memories);
- The "tales at your fingertips" (creation of tactile aids and books with fairy tales of the peoples of the world for children with visual impairment of preschool age).

Module 5 "Socially-cultural" is presented by the annually held activities at an educational institution, contributing to the formation of civic identity among high school students, such as the feast of "the Road to health: we – are going the same way", the festivals "Tales of the world nations" (grades 1-4) and "Friendship of peoples" (grades 5-11), the Week of the state symbols and citizenship, the Days of the Chuvash language and others.

Module 6 "Competition-based" involves participation of the students in competitions ("One day in the life of the homeland people", "My civil initiative", "We have much to be proud of," "I have only heard about the war" and others) and the activities (interactive game "a Starlet", intellectually-sports game "at stations": "My favorite city" and others), contributing to the formation of the civic identity of an individual.

5. Discussions

In the formation of civic identity in Russia and abroad the problem-based learning is actively used. As noted by G.W. Chilcoat (Chilcoat, 2000), the benefits of the curriculum based on the problem-based approach (an issue-centered curriculum), are that, first, both the contemporary and historical issues are examined, secondly, there is intrinsic motivation and learner interest, thirdly, the process of reflective thinking is going on, requiring the use of facts, availability of the appropriate skills, the generated values.

One of the aspects of such training is the active use of discussions in the classroom (classroom deliberation) that F.M. Hess (Hess, 2004) defines as a range of educational processes designed to engage students in a thoughtful, structured discussion, analyzing different points of view, the potential consequences are discussed and decisions are taken.

This kind of a form of work with students demonstrates its efficiency in the development of thinking skills and energizing the students with different ideas and views. J.G. Gimpel and J.E. Schuknecht emphasize the importance of this: "Students often see something negative in disagreements and conflicts, and what should be avoided, but nothing good will come of it. They do not understand the importance of ideological differences, their role in the political history" (Gimpel, 2004).

In the USA the development of critical thinking and the civic position among the students promotes the activities of the centre "Development of the character and citizenship" at the University of Missouri (in St. Louis). One of the main programs provided by the center is the LACE Program, designed to prepare education leaders to work on character building and citizenship of not only the students themselves and the teachers but also the parents and the community (Golikova, 2013).

In schools of developing the character and citizenship the daily morning 20-minute session is practiced, when through the school loudspeaker the students are offered a variety of topics to discuss, which are somehow related to the problems of moral character.

Considerable attention within the framework of forming the civic identity of a person is given to multicultural education. In this case the curriculum focuses not only on heroes, holidays, or individual elements of culture (Banks, 1994; Nieto, 1995; Suzuki, 1984), but it should help to ensure that students understand the existing problems from different angles and from different points of view.

In a general way, the main content of the multicultural education in overseas educational institutions can be represented in a form of six of its objectives, proposed by Bennett: 1) development of a multiplicity of historical perspectives; 2) strengthening of the cultural awareness; 3) strengthening of the intercultural competence; 4) opposition to racism, sexism and all the forms of prejudices and discriminations; 5) improving the understanding of the processes occurring in the state and around the world; 6) the development of social activity skills (Bennett, 1990).

Despite a number of studies confirming the importance of strengthening the curriculum of the "civilian component", one can meet also works, proving, that the inclusion of such disciplines as "Civics" is not effective, because there is no

formation of deep civic knowledge or significant improvements in the students' attitudes to civic engagement (Molnar-Main, 2007). The traditional approach, according to M.D. Miller (Miller, 2009) is in teaching social studies with the goal of giving the students a positive attitude towards civic engagement. However, according to the researcher, to increase civic engagement and improve basic skills in political discourse it is necessary to include service learning, to focus more attention on the discussion of topics related to citizenship, and more attention should be paid directly to the civic engagement of students, in particular, to volunteering.

M.Yates and J.Youniss (Yates, 1999) note a strong interconnection between practice and the emerging civic identity. Therefore, the development of social activity skills among students is one of the leading activities of educational institutions.

As an example of such a social activity the social design aimed at the formation of the civic identity among schoolchildren can be considered. So, A.A. Loginova proposes to use the Internet design, the educational potential of which is that the virtual or the real socially significant products which have found the virtual reflection (web-site and so on) created by the students are designed and implemented by them as a means of expressing their civic identity and as a means of forming that kind in any user of the website (Loginova, 2010).

Alongside with that, despite the presence of the diverse investigations in the field of the students' civic identity formation, there is no comprehensiveness, covering all the aspects of the educational process, and thereby contributing to the achievement of the maximum result in the formation of the civic identity among schoolchildren. Our development of the related program has resulted from this.

6. Conclusion

Civic identity of a personality must be considered in three aspects: the ethnic (regional), the civil (national) and general cultural (universal human), therefore, we have clarified the content of each of its structural components.

Based on the analysis of the existing world experience on the students' civic education the author's program of the students' civic identity formation is presented, which includes the interrelated modules: "Academic disciplines", "Classroom hours", "Interest groups and clubs", "School associations and social design", "Socially-cultural" and "Competition-based".

7. Recommendations

This article is of value to all researchers working on the issues of the civic identity of an individual and its formation. The practical implications are that the authors propose their program of forming the civic identity in the schoolchildren, which can be used by teachers and lecturers in preparing the curricula and classes for the learners.

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Integrative Games as the Technique of Technical University Students' Professional Competences Formation in the Field of Health and Safety

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Abstract

In order to prevent and minimize the consequences of global environmental change caused by ecological, technological and economic problems, there need professionals with high-quality training in the field of health and safety. The article defines the special aspects of technical students' professional competences formation of in the field of health and safety in the modern world. The authors propose a set of integrative games boosting the learning process, creating simulated professional activities (situations), making it possible to develop skills and influence the relationships of participants and ensuring the formation of social and professional activities and readiness for work. This article is intended for teachers, psychologists, researchers, potential employers, specialists in the field of health and safety.

Keywords: *higher education; professional competences; integrative games; health and safety; emergency situations.*

1. Introduction

1.1 Background

Prevention of emergency situations is one of the main directions of the implemented state policy. In order to reduce the risks in the technosphere, to prevent and mitigate disasters, they need professionals with high-quality training in the field of health and safety in accordance with the requirements of scientific and technological progress. Implementation of regulatory, institutional, engineering and technical, economic, social, scientific and other activities aimed at prevention and reduction of accidents and mitigation of their consequences is carried out by persons authorized to solve problems in the field of security, civil defense, forecasting and recovery of emergency situations of natural and man-caused disasters and fire safety (Ivanov et al., 2015; Shaidullina et al., 2014; Shaidullina et al., 2015). In this regard, there is a need to enhance the professional training of technical university students in the field of health and safety and identify techniques that contribute to the formation of professional competences in the field of health and safety. One of the interactive forms

of educational process organization of bachelors' training are integrative games, the use of which can ensure the formation of high-quality professional skills, as well as the ability to apply their knowledge, intellectual and practical skills in their future professional activity.

1.2 Status of a problem

Analysis of scientific literature shows that the problem of professional competences formation attracts the attention of scientists (Selevko, 1998; Baydenko, 2004; Zeer, 2005; Zimnya, 2006; Mukhametzyanova, 2010; Telegina et al., 2015; Ibragimov, 2011; Sakhieva et al., 2015 and others).

Scientific works in the field of health and safety systems in modern education (Belov, 2005; Grokholsky, 2005; Vorobiev, 2006; Muravyova, 2012) and person's safety culture formation have made a significant contribution to this study.

Considerable attention in the system of vocational training is given to exploring the possibilities of active and interactive techniques in the formation of professional competences of future specialists. In particular, there have been studied the issues of construction and use of game techniques use, role and place of game techniques in the system of higher vocational education (Efimova, 1982; Verbitsky, 1991; Pidkasistyi, 1996; Khairullina et al., 2015; Panfilova, 2006; Novikov, 2006 and others).

Due to the integrative processes in the system of vocational education integrative games become increasingly actual, they allow to ensure the integrity of some game forms and thus improve the efficiency of bachelor's training. However, such questions as a selection of the integrative games content, their functional structure, scenario planning, complex implementation, performance evaluation, systematic use and productivity conditions in terms of bachelors' vocational training in a technical university remain insufficiently studied.

1.3 The research hypothesis

The objectively existing need for the formation of technical universities bachelors' professional competences in the field of health and safety does not have a unique technique and methodic of implementation in the educational process of the university. The questions of game forms complex use in a close relationship and integration, both among themselves and with the stages of the whole process of bachelors' training, remain unexplored. According to our hypothesis, the efficiency of technical university bachelors' professional competences formation in the field of health and safety will be raised if in the learning process there is implemented the complex of integrative games which promote intensification; implementation of professional orientation of the educational process; interdisciplinary training and educational- industrial integration; development of the industrial skills of students.

2. Experimental

2.1 The objectives of the research

We have identified the following research objectives: 1) to determine the formation technique of technical university bachelors professional competences in the field of health and safety by means of integrative games; 2) to substantiate and develop the integrative games complex based on the principles of systemacity, continuity and professional orientation of training; 3) to introduce into the educational process and to verify the effectiveness of the integrative games complex as a formation means of technical university bachelors professional competences.

2.2 Theoretical and empirical methods

In order to examine the hypotheses of the study there were used theoretical (analysis, synthesis, generalization, classification, abstraction and others, applied to the State educational standards of higher professional education of the third generation, training and program documentation, training and methodic developments on this problem, law and regulatory acts governing educational activities, etc.); empirical (an interview, questionnaires, monitoring, a method of expert evaluations, teaching methods, an experiment); statistical (synthesis and processing of experimental data) methods.

2.3 The basis of the research

The experimental work was carried out during the period from 2006 to 2013 on the basis of the Kazan National Research Technological University named after A.N. Tupolev (KNRTU - KAI). The experiment involved the students of I-IV courses acquiring disciplines in the field of health and safety (in total 211 students).

2.4 The Stages of the research

The study was conducted in three stages:

In the first stage the teaching experience of development of game training courses for different specialties has been studied, there were analyzed approaches to techniques of the technical university bachelors' vocational training from the standpoint of the professional competences formation; there were also studied qualification characteristics and the model of professional activity in the field of health and safety.

In the second stage there was designed the complex of integrative games, providing the gradual formation of professional competences and a technique of their implementation in bachelors' vocational training "Protection in emergency situations."

In the third stage an experiment was conducted to determine the level of bachelors' vocational training: an ascertaining stage (according to the current level of competence formation of students in the control group), a forming stage (according to the implementation of integrative games in the learning process) and a controlling stage (by definition of learning outcomes while using the complex of integrative games).

2.5 Grounding for the use of integrative games complex in the educational process of bachelors' training

Modern requirements for training specialists in the field of "Protection in emergency situations" have shown that it is necessary to ensure full readiness for professional work in the course of entire educational process, starting from the first year and ending with the defending of bachelors' final qualifying work.

Starting point for making professional decisions can and must serve the knowledge gained throughout life. That is, the earlier a person begins to form professional thinking, the more fundamental will be professional knowledge in the context of professional activities and more likely that his decisions taken in professional activities will be coordinated with the requirements of society. It is coordinated with the concept of Donald Sean, he called the concept of critical reasoning of practical activity (reflective practitioner perspective), which directs the experts - practitioners to rethink the results of their work, both during the creative process, and after receiving the final results. It should also be noted that technical university bachelors should be ready to take professional decisions and have a developed professional risk - thinking. Risk is a decision or an action from the perspective of subjective characteristics of uncertainty, where a person not only uncovers a mismatch of required and existing or potential opportunities in control of a situation, and where the evaluation of these opportunities potential is also uncertain. We are talking about the readiness for self-control actions in a deliberate incompleteness or unavailability of the necessary benchmarks, as well as the willingness to rely on one's potential.

In these circumstances, the teachers, performing technical specialists training, face the problem: to design such content of taught courses and to establish a system of didactic teaching aids, so a university graduate can smoothly adapt to modern conditions and become fully competitive in the labor market. The training of graduates of this level with the use of modern educational techniques is the main task of the Bachelor's programme.

In the bachelors' training the leading forms are active methods which recreate not only objective, but also a social content of future professional activity. The social context implies skills of social interaction and communication, sharing solutions, collective thinking, etc. During training the bachelor must perform the exact actions that are similar to those that will have a definite place in his career. The only difference is that the answers to the questions, which outcomes the initiated actions will lead to, in game situations gives a model of reality, not reality itself.

3. Results

3.1 The algorithm of developing the complex of integrative games for the professional competence formation of future engineers

The integrative games are defined as a kind of professional-oriented game activity simulating professional processes, modeling solutions to the tasks on the basis of interdisciplinary and education- production integration that contributes to

the disclosure of personal potential of students (Prokofieva, 2012).

Integrative games character is explained by their certain features:

- firstly, the feature of integrative games is that learning occurs in situations as close to the real, so it permits the material, necessary for learning, to enter into the target activity, rather than in means.
- secondly, it is realizing not only the knowledge transfer but also training the skills use in practice, which in turn requires the presence/formation of certain personal qualities of students.
- thirdly, it is arranging the formation of new, qualitatively different orientation on training in emotionally intensive process of collective creative work.
- fourthly, there is interdisciplinary, educational-industrial integration.

We have developed the algorithm for designing the complex of integrative games comprising the following stages:

1. Definition of the professionally-oriented content reflecting the object of engineering labor, imitating professional activities and situations that arise in the professional field;
2. Definition of rules and scripts that define the relevance to the professional decision making process in the discipline framework;
3. Establishing necessary roles of participants (similar to positions in professional activities in the disciplinary safety);
4. Search for and justification of an important engineering problem in the field of safety and / or an industrial conflict situation;
5. Statement of a common industrial target for all participants in the game, and the definition of tasks for each participant able to influence by his/her actions on the achievement of final professional result, playing a certain role;
6. Formation (imitation) of industrial environment or its elements, recreating important conditions for competent professional decision making in the discipline.

3.2 The complex of integrative games in the field of "Health and Safety"

We have developed the complex of integrative games combined to form the professional competences during the whole training which simulates real professional connections and relationships, work situations and forms the conflict, industrial - professional situations during the game due to the divergence of the game participants' interests or a number of conditions of information uncertainty.

The complex of integrative games for the formation of professional competences of future engineers in the field of "Health and Safety" includes:

- an integrative game aimed at the ability to work in a team ("The team in extreme situations"), including simulation, research, vocational and communicative, professional activity of an engineer. The content of the integrative game "The team in extreme situations" is aimed at recognition, comparison, characteristics, disclosure of concepts, justification and application of professional knowledge in the field of protection from emergency situations (orientation stage). The game is played at the first course, 2-4- times a year, the situation varies.
- an integrative game aimed at identifying leadership qualities ("I am the leader"), including the simulation, organizational and managerial, professional activity of an engineer. During the integrative game there have been solving professional problems connected with the development of roles and specific of regional production, while the process of the integrative game there have played such important conditions as the geographic location of the object (excursions, photos, plans and maps of workshops, etc.), the presence of explosive industrial equipment and facilities for its service (installation phase). The game is played on the second year of studies, 2-4- times a year, the situation varies.
- an integrative game aimed at the formation and development of professional competences ("Emergency situation"), including the simulation of organizational, managerial and expert work of an engineer. During the game, the quasi-professional task is solved - an emergency situation emerged in the production accordingly the specifics of the regional branches of the economy (forming phase). The game is played on the third and fourth years of studies, 2-4- times a year, the situation varies.

The structure of the integrative games complex forms a set of elements: the subject of an integrative game, an integrative game scenario, integrative game participants, a role, functions of players, integrative game rules, diagnostics of the participants activities, as a result of manifestation of his professional competences. This complex is implementing throughout the bachelors' vocational training. For each course it is implementing its own type of an integrative game

corresponding to the currently available professional knowledge and skills of students.

3.3 The effectiveness of the implementation of the integrative games complex in the process of bachelors' training at the university

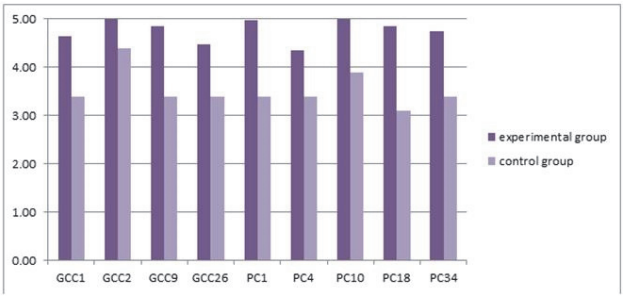
The effectiveness of the implementation of the integrative games complex is characterized by the criteria, indicators and levels of professional competences formation, tested by us in bachelors' training in the field of "Protection in emergency situations." The authors have developed diagnostic tools to carry out the dynamic evaluation and visualization of the results of professional competences formation throughout the whole cycle of bachelors' training, including the adapted evaluation system with a total cumulative calculation of results of each bachelor's professional development according to the results.

Each criteria, determining the structural components of professional competences, can be formed on one of three evaluation levels: - a low one: personal abilities are not used to the full extent, or suppressed, resulting in a state of indecision, the difficulty in solving questions of different nature; the absence of a stable demand in special professional knowledge; - an average one: standard relation to professional activities; focus on cooperation, the presence of an independent trajectory of behavior based on personal abilities; - a high one: a comprehensive, versatile use of one's capabilities; responsibility for decisions, active actions, a constant readiness for self-improvement, an ability to adapt to any situation. Finally they give the integral evaluation – a compliance with the specialty determined by the level of each competence display and analysis of quasi-professional bachelor's activities within the simulation situations of integrative games.

The usage of this evaluating system allows: to obtain an estimation of achievement of competences individually for each bachelor concerning each integrative game; to diagnose gaps in the acquisition of knowledge and skills by bachelors during the traditional training and to implement their on-time correction; to determine the individual quality of each bachelor, their professional competences, behavior and ability to work in a team, leadership qualities, etc.

The level of bachelors' professional competences formation in the field of "Protection in emergency situations" can be identified by means of their successful participation in the integrative games. Playing of work situations, on the one hand, enriches their knowledge of safety, materials and expertise, and on the other, detects the presence or absence of professional competences of the bachelor in the field of "Protection in emergency situations". Thus, integrative games can be used both as a diagnostic tool and as a tool for the professional competences formation.

Comparative analysis of professional competences formation among the students having traditional learning (control group, 84 students) and those who use the integrative games complex (experimental group, 127 students) has shown the average 30% and more increase of level of professional competences formation (Figure 1)



(GCC - general cultural competence, PC - professional competence)

Figure 1. Comparative analysis of professional competences formation of control and experimental groups (summarized data)

4. Discussions

During the process of integrative games happens the simulating of bachelors' professional activities, as well as the strategy for professional training in the university is developing in terms of future activities field – design-engineering;

service-operational; organizational and managerial, expert, oversight and inspection-auditing; science-research. During the integrative games in the field of "Protection in emergency situations" it is developing a system of values which characterizes the integrity of the person, persistence in achieving goals, the attitude to oneself, to learning, to their future profession.

5. Conclusions

The bachelor in the field of "Protection in emergency situations" acquires the disciplinary content of training (knowledge, skills, professional experience) and, occupying a specific position in a communication system of participants in the educational process, follows established norms of social relations and actions to the extent that he is active here, is being formed and brought up as a person. During studies bachelors realize three basic forms of activity: learning, quasi-professional and learning-professional, considering the fact that the transition from one form to another is determined by the logic of contextual organization of the learning content. Design, basement, organization of these forms of activity accounts requirements not only in the aspect of the studied science, which the educational process is based on, or didactics, but also in terms of professional activity, taking into account the social standardization of students activity. These requests from professional activities are system forming which determine the training technique.

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Influence of the Family Socialization on the Formation of Gender Features of Modern Teenagers

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Abstract

The relevance of the investigated problem is due to insufficient knowledge about the impact of parent-child relationship features on the development of the adequate teenager gender identity. The purpose of the article is to study the effect of the family socialization on the formation of gender features of modern teenagers. The leading approach to the study of this problem is the system-activity approach. In the course of empirical study it was found that the formation of masculine features of modern teenagers during the family socialization is associated with a positive attitude on the part of the father, and the formation of feminine traits is due to a positive attitude on the part of the mother and too rigid and inconsistent attitude on the part of the father. The article's materials may be useful for psychologists, teaching staff, social workers.

Keywords: *socialization; parent-child relationships; gender features; femininity; masculinity; teenagers.*

1. Introduction

1.1 Background

One of the main problems of modern psychology gender theory is the question of gender socialization and identification in terms of transformation and crisis of Russian society. During the gender socialization of teenagers, i.e. in the process of acquiring the rules, values, attitudes, norms of masculine or feminine behavior there reveals a complex multidimensional system, or rather, the composition of socio-cultural multi-level interactions.

Due to changes in the socio-cultural situation in Russia, transformation of values of the Russians, including teenagers, deep social crisis affecting the family, we can talk about the crisis of gender socialization of teenagers.

The gender socialization, as a part of the overall process of socio-cultural reproduction of society, is one of the least studied problems in psychology. This state of affairs seems reasonable, since 1) the complexity of the problem of gender socialization is connected with biopsychosocial nature of gender and therefore requires the inter-disciplinary bio-psycho-sociological approach; 2) the genderology, as a relatively independent area of scientific knowledge, appeared only in the 70s of the twentieth century; 3) there has not yet developed the research methodology of this phenomenon.

However, social transformation, affecting all spheres of modern life, with a new force has defined the contradictory position of the genders in the private and public spheres, has had a marked impact on a marriage and a family, relations between spouses, parents and children, thereby actualizing the problem of taking individuals' gender roles (gender socialization) exactly in a transitional society (Legenina, 2004)

In childhood and adolescence the family is one of the main institutions of socialization. Namely under the influence of relations on the part of parents it is forming the identity of a teenager. The modern family is a family that lives in the new socio-economic conditions and is one of the most flexible, changeable social groups (Smirnova, 2005). On the one hand, just through it, the preservation and continuity of classical gender stereotypes and attitudes are ensured, and on the other hand, it is the family that becomes for the child a conductor of new trends that are reflected in the minds of the spouses as their value orientations, needs, life plans, relationships between genders. It is namely in the family a new understanding of the place and role of men and women in modern world is formed, a gender moral is changing, subcultural differentiation of gender and gender-role identity is transforming. (Shabanov, Shelehov, Ruban , 2009). Under the influence of new trends in the development of society there are taking place the changes in the attitude of parents to children, in the approaches to children upbringing in the family, all these factors also influence the gender socialization features of modern teenagers.

Recent years scientific studies show that modern teenagers often have an inadequate perception of gender roles and related behavioral distortions (Ponewag, 2007). In this regard, it is actualizing the need to study the effect of family socialization on the formation of teenagers' gender peculiarities to develop further correction of psycho-pedagogical programs for working with teenagers and their families, as well as to optimize the educational process both in families and educational institutions.

1.2 Explore Importance of the Problem

Gender socialization is the process of assimilation by the individual the gender cultural system of the society in which he/she lives, it is a kind of designing differences between the genders. The main socializing factors (agents) are social groups and contexts – family, education institutions, peers, media, clubs, churches, and others. In the works of native psychologists is generally considered a small range of issues relating to gender problems, namely: the emergence and the development of gender studies in psychology, peculiarities of the organization and research in the field of gender, meaningful characteristics of gender stereotypes (Kletsina, 2003).

One of the main areas of gender studies in psychology is the actual gender study, which is conducted within the framework of social and psychological direction. The theoretical basis for this research is the gender approach that focuses on how specific behavior and roles of gender acquire a gender tint, on appearance of gender differences in the work and reflection of gender values and benefits by social structures (Filatova, 2009).

The modern social situation is that children are surrounded by a lot of women and female, the child has relatively little opportunity for proper masculine manifestations. The gender-role socialization in its present form leads to paradoxical results: as if boys are pushed to the passivity or out social activity, girls, on the contrary – to hyperactivity and dominance. At the same time they have to live in a society mainly oriented to traditional gender-role standards (Rimarev, 2006). Inadequate formedness of gender roles, gender identity crisis is a problem of not a single personality, but a state of psychological distress, which is characteristic for a significant part of both men and women as representatives of the gender groups. Consistent gender identity causes positive self-identity as a representative of a particular gender and the subject of gender relations. Contradictions expressed in the structure of gender identity predetermine the negative attitude of the person to oneself, that provokes a state of intrapersonal conflict and crisis manifestations (Stepanova, 2007).

The central factor in the psychological development of adolescence, its the most important new formation is the establishing of a new level of consciousness, the change in a self-concept determined by the desire to understand oneself, one's capabilities and features such as combining teenagers with other people, groups of people and distinguishing from them, making them unique. This is related to the sharp fluctuations in the relation to oneself, the instability of self-esteem (Elkonin, 2004). During this period inadequately formed perception of one's gender identity may have a bad influence on the successful formation of the teenager's personality, may lead to violations of his/her socialization.

1.3 Status of a problem

The studies on gender socialization of teenagers were carried out mainly within the framework of psycho-physiological

paradigm during the second half of the XIX-XX centuries. For physiologists the puberty is a constant anthropological characteristic of the person. However, in terms of socio-psychology the phenomenon of "adolescence", "juvenile" from the time of (Mid, 1988) is not a universally-historical category, but a theoretical construct that reflects the realities of modern society. The puberty has been extensively studied not only by physiologists, but also by psychologists and psychoanalysts – (Freud, 1921, Piaget, 2003). There has been paid a special attention to puberty in the history of the personality development, as well as to psychosexual development and changes in the intellectual sphere.

The development of the basic ideas about the structure and functions of gender identity goes back to the classical foreign works and theories of identity and has been studied many scientifics. Thanks to modern research, masculinity and femininity are considered as independent variables, different combinations of which have different effects on social adaptation of men and women (Peregudina, 2011). The researchers pointed out that masculinity and femininity are not opposed to each other, that a person can have both masculine and feminine traits, and believe that it is desirable for a person to be androgynous, so that to incorporate the best of both gender roles (Stolyarchuk, 2012).

The role of the family is analyzed in many studies devoted to role gender or gender socialization (Introduction to Gender Studies, 2001). In the family during the process of interiorization and identification the assimilation of gender roles of society is happening, corresponding to the dominant gender order. The special role occupies the mother as the leading agent of gender socialization (Bern, 2001), and the role of the father in the research remains a "white spot", with the exception of some works demonstrating that more emancipated ("non-traditional", achieving success) girls grow in families where fathers pay attention to the up-brining of their children (Kletsina, 2004).

1.4 The research hypothesis

The formation of masculine traits of modern teenagers in the family socialization is associated with a positive attitude on the part of the father, and the formation of feminine traits is due to a positive attitude on the part of the mother and too rigid and inconsistent attitude on the part of the father.

2. Materials and Methods

2.1 The objectives of the research

In the study, the following *objectives* have been solving: 1) the theoretical analysis of the scientific literature on the research topic; 2) the selection of psychodiagnostic tools, methodic of the research; 3) the testing of the respondents; 4) the data processing by methods of mathematical statistics; 5) analysis of the data, their theoretical conceptualization, formulation of conclusions.

2.2 Theoretical and empirical methods.

The selected research methodology, the basic foundation of which are the socio-psychological and gender approaches, have led to the choice of research methods and methodic. In the course of studies there are used the methods of empirical and theoretical levels. The first includes social and psychological testing. Methods of the theoretical level are the analysis, synthesis, comparison, generalization of the results of empirical research. When processing the results of the research, there are used statistical treatment (analysis of the reliability of the difference of average indicators (Student's T-test) and two-way correlation analysis (Pearson correlation coefficient).

For the diagnosis of psychological gender and determination the degree of personality's androgyny, masculinity and femininity it is used the gender roles questionnaire S.Bem (Bem, 2004). To study the effect of parents' attitude on the formation of gender identity in the process of socialization there is used the ADOR questionnaire aimed at examining the attitudes, behavior and methods of parents' up-brining as they are seen by their children in their teens (Wasserman, Gorkovskaya, Romitsyna, 2004).

2.3 The basis of the research

The study has involved 178 teenagers aged 13-17 years (students of municipal budgetary general education institution "Dzhalil secondary school №1 with advanced study of some subjects"). There are 96 girls and 82 boys. There are identified masculine features for 33 (34.4%) girls, androgynous – for 41 (42.7%), and the feminine - for 22 (22.9%). There are identified masculine features for 16 (19.5%) boys, androgynous - for 43 (52.4%), and the feminine - for 23 (28.1%).

Therefore, we can say that modern teenagers actually have gender identity and gender socialization disorder.

2.4 The stages of the research

The research has been conducted in three stages:

Stage I – the study of the problem of gender socialization of modern teenagers, analysis of the causes and discovery of the factors that influence the formation of gender identity features; - definition of the goal, objectives and working hypothesis of the research.

Stage II - familiarization and review of scientific literature on the research problem; collecting statistical and analytical material for justification of the proposed hypothesis.

Stage III - analysis and systematization of the data, formulation of conclusions and recommendations, presentation of research results in the form of the article.

3. Results

3.1 Special features of the impact on gender socialization of teenagers, attitude on the part of the mother

The results of the research have showed that modern teenagers with feminine features on the part of the mother have a high level of positive interest and reduced hostility. Teenagers with masculine and androgynous features attitude on the part of the mother are about the same (Table 1).

Table 1. The features of the attitude on the part of the mother (Student's T-test)

	masculinity/ androgyny		masculinity/ femininity		femininity/ androgyny	
	T	p	T	p	T	p
Mother positive interest	-0.522	0.606	-2.402*	0.049	1.751	0.090
Mother directivity	-1.228	0.230	-0.234	0.821	-1.369	0.181
Mother hostility	-0.278	0.783	1.204	0.263	-2.068*	0.047
Mother autonomy	-0.151	0.881	-0.499	0.631	0.705	0.486
Mother inconsistency	-1.383	0.178	-0.718	0.493	-0.852	0.401
Mother intimacy	-0.139	0.890	-1.629	0.142	2.107*	0.043
Mother criticism	-0.710	0.484	0.165	0.873	-1.300	0.203

There have been established significant differences of averages indicators in the groups of masculine and feminine teenagers on a scale of positive interest on the part of the mother (T = -2. 402 at p = 0.049). In groups of feminine and androgynous teenagers have been established significant differences in average indicators on a scale of hostility (T = -2.068 at p = 0.047) and intimacy on the part of the mother (T = 2.107 p = 0.043).

The results of correlation analysis of interrelation of attitude on the part of the mother on the formation of modern teenagers' masculinity and femininity using the Pearson correlation coefficient are shown in Table 2.

Table 2. Interrelation of attitude on the part of the mother on the formation of modern teenagers' masculinity and femininity (Pearson correlation coefficient)

	Masculinity	Femininity
Mother positive interest	0.092	0.628**
Mother directivity	0.119	0.092
Mother hostility	-0.021	-0.364*
Mother autonomy	0.081	0.211
Mother inconsistency	0.028	0.096
Mother intimacy	0.062	0.543**
Mother criticism	0.032	-0.060

**. Correlation is significant at the 0.01 level (two-sided).

*. Correlation is significant at the 0.05 level (two-sided).

Correlation analysis has revealed that the attitude on the part of the mother is not associated with the formation of

masculine features, but related to the formation of feminine traits. And the feminine traits of modern teenagers form stronger with a positive interest (r = 0.628 at r≤ 0.01) and intimacy (r = 0.543 at r≤ 0.01) on the part of the mother, and hostility on the part of the mother influences negatively on their formation (when r = -0.364 r≤ 0.05).

3.2 Special features of the impact on gender socialization of teenagers, attitude on the part of the mother

On the ground of the conducted study it has been found that directivity and inconsistency are prevalent in teenagers with feminine traits with an *attitude on the part of* their father, and positive interest are prevalent in teenagers with masculine traits (Table 3).

Table 3. The features of the attitude on the part of the father (Student's T-test)

	masculinity/ androgyny		masculinity/ femininity		femininity/ androgyny	
	T	p	T	p	T	p
Father positive interest	-1.100	0.280	-0.412	0.689	-0.886	0.382
Father directivity	- 0.843	0.406	0.383	0.710	-1.718	0.095
Father hostility	-1.843	0.076	-1.871	0.091	0.562	0.578
Father autonomy	-2.503*	0.018	-1.213	0.253	-1.105	0.277
Father inconsistency	-1.672	0.105	-3.234*	0.009	2.357*	0.029
Father intimacy	0.322	0.750	0.905	0.387	-1.025	0.313
Father criticism	1.413	0.168	2.882*	0.016	-1.181	0.246

There have been established significant differences of averages indicators in the groups of masculine and androgynous teenagers on a scale of autonomy (T = -2.503 at p = 0.018), the groups of masculine and feminine teenagers on the scale of inconsistency (T = -3.234 at p = 0.009) and criticism (T = 2.882 p = 0.016) and groups of feminine and androgynous teenagers on a scale of inconsistency (T = 2.357 p = 0.029).

The results of correlation analysis of interrelation of attitude on the part of the father on the formation of modern teenagers' masculinity and femininity using the Pearson correlation coefficient are shown in Table 4.

Table 4. Interrelation of attitude on the part of the father on the formation of modern teenagers' masculinity and femininity (Pearson correlation coefficient)

	Masculinity	Femininity
Father Positive Interest	0.413**	0.059
Father Directivity	-0.132	0.369*
Father Hostility	0.123	0.305
Father Autonomy	-0.025	0.020
Father Inconsistency	0.136	0.462**
Father Intimacy	0.011	-0.156
Father Criticism	-0.155	-0.313
**. Correlation is significant at the 0.01 level (two-sided)		
*. Correlation is significant at the 0.05 level (two-sided)		

Correlation analysis has revealed that the attitude on the part of the father is associated with the formation of both masculine and feminine traits. Thus, the positive interest from the part of the father is positively connected with the formation of masculinity (r = 0.413 at r≤ 0.01), and directivity and inconsistency are positively connected with the formation of femininity (r = 0.369 at r≤ 0.05 and r = 0.462 at r≤ 0.01).

4. Discussions

The study found that the more the mother's attitude manifests such traits as hyper protection, the desire to satisfy every wish, an attitude to a teenager as a young child who requires constant attention, care, assistance, who is not enough able to do anything, a limitation of teenager's autonomy, the more the teenagers' feminine traits are formed. If the behavior of the mother manifests traits such as suspicious attitude to a family environment and distance in relation to its members (particularly children), the self orientation of mothers, aggressiveness, emotional coldness and excessive strictness in

dealing with a teenager, so the formation of feminine traits is declining, but at the same time the masculine traits are not forming.

The obtained data show that the teenagers' masculinity is rising if a father tries to win their affection and reverence of father's authority primarily through mutual trust, common sense. In this case, the behavior of the father demonstrates self-confidence, confidence that not strictness but attention to a teenager, warmth and open relationships between a father and a child are a manifestation of genuine interest. A clear understanding the boundaries of what is possible and what is not exists in case of warm and friendly relations dominance. Father's prohibitions act in this case only on the background of paternal love. This attitude creates the teenager's self-confidence in his/her abilities, the ability to find ways out of different situations without any fair to ask for advice, independence.

If in its attitude to a child or a teenager a father demonstrates his strong will of a man, who is always ready to show a child his/her place both in the world and in the family, makes to obey the accepted norms and rules, but behaves unpredictably, doesn't support his behavior by these rules and values, so it promotes the formation of feminine traits such as uncertainty and weakness.

5. Conclusion

Presented in the article the results of the research let us make the conclusion that the formation of modern teenagers masculine traits in the family socialization is associated with a positive attitude on the part of the father, and the formation of feminine traits is caused by a positive attitude on the part of the mother and too rigid and inconsistent attitude on the part of the father. Thus, the goal of the research is reached, the hypothesis is confirmed.

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Social and Educational Effects (Dominants) in Schoolchildren' Ethno-cultural Education

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Abstract

The basis of state educational policy in the National Doctrine of Education of Russian Federation plays the priority of national spiritual values that defines certain tasks in order to harmonize national and ethno-cultural relations; to preserve and support ethnic and national cultural identity, languages and cultures of Russian people. Being the link between the past and the future, ethno-cultural education promotes man of culture formation and a tolerant personality capable for ethnical self-determination, and having qualities of a citizen. The purpose of this article is to identify and justify social and pedagogical effects of schoolchildren's ethno-cultural education. The main study approaches are axiological, ethno-cultural and lingvo-culturological. The result of schoolchildren's ethno-cultural education are social (experience gaining within the international cooperation on the basis of building harmonious relations in a multicultural environment; intensification of ethnic and cultural development and self-development) and pedagogical (sustained interest and the need for ethnic and cultural values development, ethnic and cultural knowledge enrichment, developed a sense of belonging to people's history and culture; the integrity of ethnic and cultural values perception in the unity of all national art components) effects. This article may be useful for teachers developing ethno-cultural educational programs.

Keywords: *schoolchildrens' ethno-cultural education; social and pedagogical effects.*

1. Introduction

1.1 Significance of a topic

The ongoing process of globalization as the threat of losing cultural face of the world, necessitates ethno-cultural education of young people in their homeland. Disclosure and awareness of ethnic culture's semantic features will allow Modern School to build educational process in the continuity with the best traditions of the past, will inevitably go on to establish an organic connection of goals, objectives, educational content within modern schoolchildren phenomenon (Bakhtin, 1979; Pankin, 2006; Petrova, 2014; Fyodorov, 2008). The starting point in this process is defined by humankind's cultural values, including the values that make pupil's ethno-cultural area. Adoption and adaptation of these values are characterized by cultural gains that allow us to consider them through the prism of social and pedagogical effects (Ivushkina, 2001).

1.2 Explore Importance of the Problem

Ethno-cultural education practicum analysis highlights the need for search and scientific substantiation of effective forms and methods to increase the efficiency of this process, review the results as they relate to social and educational effects.

Ethno-cultural education should be organically included in the content of school subjects, which contribute to an understanding of students' ethnic and national belonging and on this basis of Russian civil identity formation, a sense of pride for their Motherland. This approach corresponds with ethno-cultural education targets - ethno-cultural and civil identification, inter-ethnic harmony in a society.

1.3 Regional specific features

Chuvash Republic is a multi-ethnic region presenting variety of national cultures, mentalities, and which operate on an equal basis with two official languages (Russian and Chuvash). Chuvash population comprises about 60% of people, and at the same time, there are schools with Russian, Chuvash, Tatar and Mordovian educational languages. Historically, school education's ethnic and cultural component serves the continuity with the experience of Simbirsk Chuvash teacher's school - the brainchild of I. Yakovlev, Chuvash national educator. At this school school-teachers training took into account national peculiarities of the territory, where their professional activities took place: native language lessons, artistic and aesthetic cycle lessons (music, drawing, manual labor) with implementation of their ethno-cultural component, the organization forms of extra education and leisure activities (choir, orchestra, arts and crafts, ethno-theatre activities etc.) All this aspects were aimed to preserve and revive ethnic and cultural values in rural and urban society. Effective organization of socially oriented educational process serves to Chuvash Republic schools as a model to organize ethno-cultural education, the results of which should have social and educational effects.

1.4 Status of a problem

Significance of schoolchildren's ethno-cultural education problem should be viewed from different perspectives, since its effectiveness must be measured in terms of social and educational effects. Thus, considering the issues of ethno-cultural education, A. Pankin (2006) and T. Petrova (2014) pay special attention for the use of national pedagogical experience that reflects family's and community's needs in children's education applying the example of national ideal. G. Volkov (2009), the founder of ethno pedagogics as pedagogics branch, established a direct relation of ethno-cultural education from Pansophia of ethnopedagogics underlying interpersonal and inter-ethnic relations in society. S. Fedorova (2009) and E. Hakimov (2000) studied teacher's ethno-cultural training at high school and at teaching staff's further training. G. Atamanchuk (1997) and N. Ivushkina (2001) viewed pedagogical activity's social effects through the prism of process management that, with respect to our study, can be interpreted, as the use of ethno-cultural education in various organization forms.

2. Methodological Framework

Axiological, ethnocultural and lingvo-culturological approaches are the main to construct ethno-cultural educational process at school.

Axiological approach lies in the fact that ethno-cultural education is based on ethnic and cultural values perception, which are the basis for schoolchildren's humanistic and democratic value orientations. In social terms, the alignment of ethno-cultural educational process on the axiological approach basis is regarded as the most important term to harmonize inter-ethnic relations and inter-ethnic concordance in society.

Ethno-cultural approach is based on national cultural and educational environment, providing variety of activities for schoolchildren, and also forms and methods of initiation to ethnic culture. The process of training and education are based on national culture's traditions and values and are updated by the most artistically creative activities reflecting culture development in natural forms of its existence.

Lingvo-culturological approach involves the familiarization with national culture in line with the process of national language development and study because language and culture education phenomenologically make up organic "language culture" (language as a translator of culture, culture as a way of language). Therefore, familiarization with national language on artistic and imaginative basis is recognized as an effective tool in learning process, most fully realized in specially organized conditions and within national-cultural environment.

3. Materials and Methods

3.1 Study aims

Following tasks were set during the study: 1) disclosure of essential-content characteristics of ethno-cultural education; 2) identification of socially significant and pedagogical potential of ethno-cultural education; 3) Identification and justification of social and pedagogical effects of schoolchildren's ethno-cultural education.

3.2 Theoretical and empirical methods

The study used a variety of complex methods, complementing each other:

- Theoretical: pedagogical analysis (general pedagogical, historical-pedagogical, ethno-pedagogical), arts, sociological literature, regulatory and legislative acts in the field of education; study and generalization of pedagogical experience, analysis and synthesis;
- Empirical: a sociological survey, interviews, discussions, study of educational activities results at secondary schools.

4. Results

4.1 Essence - substantial characteristic of schoolchildren's ethno-cultural education.

In order to disclose essence –substantial characteristics of ethno-cultural education, we presented generalized definitions of "ethnicity", "ethnic culture" concepts.

Generally ethnicity is defined as a historically constituted community of people in tribe, or national group with signs of social integrity and original behavior (Dictionary of Russian language); historically formed group of people united by common origin, language and cultural features (Guenon); group "of people speaking the same language, recognizing their common origin, possessing complex customs, way of life, stored and hallowed tradition and distinguishes it from other such groups" (S. Shirokogorov, 1923). Based on the last definition, the basis of ethnicity forms the commonness of culture - material, spiritual, artistic.

Ethnic culture is seen as a form of human activity, covering all areas of the developing ethnic group; as a set of various forms of human activity, images of self-knowledge and knowledge of the world and of its symbolic indication, which is the basis of ethnicity, thus ensuring the integrity and ability of autonomous ethnic sustainable development (U. Bromley, 1983). As it follows from the above definitions, ethnic culture is the developing formation, reflecting ethnic group's cultural achievements.

Thus, there is a direct line and communication between the concepts of "ethnicity" and "ethnic culture" that is taken into account by us when determining the content of ethno-cultural education.

In this regard, ethno-cultural education is defined as education, focused on the development and socialization of ethnic identity, the preservation of its ethnic and cultural identity based on familiarization with the native language and culture. Thereby ethno-culture includes two main components: the native language and native culture.

It was important for the aims of our study to follow the principle of regionalization of education, in particular, of ethnic and cultural education. Remembering the fact that Chuvash Republic is a home for more than a hundred nationalities, there exist national language schools teaching a variety of disciplines (except Russian language courses), Chuvash, Tatar, Mordovian languages. This fact revives the problem of ethno-cultural education's social significance.

Following this fact, comes the purpose of ethno-cultural education - the formation of students' value orientations based on ethno-cultural knowledge and understanding, contributing to their ethno-cultural and civil identity and tolerance for other peoples' cultures.

Ethno-cultural education contributes to the attainment of person's ethnic and cultural status, whose parameters E. Khakimov (2000) defined as autostereotypes, cognitive and affective components of ethnical identity; family (mother) language speaking level; interest in national holidays participation, mastering national artistic activities (crafts, handycrafts, folklore, etc.). inter-ethnic tolerance; behavior based on traditions of national etiquette (person's relation to another nationalities).

Thus, children's ethno-cultural education is considered essential for the harmonious development of a multicultural community of Russians, being a link between the past and the future. It contributes to human culture formation, a free personality able for self-determination in the world of culture, and who is considered to become a citizen.

4.2 Ethno-cultural potential in the context of social and pedagogical effects.

Let's examine the potential of ethno-cultural education not only in in general but also in the context of its effectiveness, that is, in the context of emergence of social and pedagogical effects. Note that the effect (derives from Latin. Effectys - execution of the action, from efficio – act, execute), is both the result and the consequence of any reasons and actions.

Previously we have identified native language and culture as main components of ethnic culture, being socially significant phenomenon. Knowledge of mother language, according to the great philosopher Hegel, is the indicator of education and culture level. However, in practice we observe that students in bilingual school, which is widespread in multinational Russia, in fact, study mother language as not their own, but as a foreign, being apart from its figurative nature. This fact is indicated and underlined by practicing teachers and methodologists. The realities of our life also suggest that social tensions often arise based on prejudice or imposing not their own, but another language. To change this practice of studying student's maternal language or the language of the place where he lives, is highly possible if this approach will be based on ethno-cultural teaching aspect, that is, the integration of artistic culture into Chuvash language lessons.

Our study confirms the hypothesis that if one starts studying Chuvash language from perceiving its intonation architectonic, that is, with "the music of a language ", and this is possible when Chuvash folk songs is played in Chuvash language (imagine performing Russian folk song "*In The Meadow Stood a Little Birch Tree"* "in other language, for example, in English, children immediately start saying that the song sounds as a non-Russian), the interest for the language will be vivid: because it will turn out to be melodious. In addition, if you integrate the new words sounding into play activities, they are perceived naturally and easily. Thus, the song and the game as ethno-cultural phenomenon being parts of ethnic culture, organically included into the educational process, contribute to the formation of stable interest to the language, which is an ethnical culture's grain.

Ethno-cultural education is being applied during music and art courses, culture of a native land courses, and in various forms of additional education and leisure activities of students, it also has a didactic and educational potentials, which constitute abilities to:

- formation of moral-aesthetic attitude real life within students;
- development of a creative personality based on an understanding of Chuvash folk art's national features and artistic interpretation of its ethnic culture examples;
- schoolchildren's understanding of folk art's universal, humanistic nature, especially through fairy tales, legends, songs, rituals, and on this basis, development of schoolchildren's tolerance.
- We identified the following pedagogical provisions to reach these aims:
- to create cultural, aesthetic and moral settings during the lessons;
- to develop student's active and practical attitude towards folk art;
- to include artistic activities into each student's lesson;
- to include authentic (genuine) folk art, especially songs, embroidery, folk costumes during the lessons;
- to involve parents into the process of traditional artistic culture development of Chuvash people.

These provisions determine pedagogical effect of ethno-cultural education, reflected in the fact that children through the familiarization with the ethnic and cultural values generated a strong interest to their own and another culture, to the beauty and sonority of native or other language; they also develop a sense of respect for the language as cultural wealth of people, adhesiveness required to perceive ethnic culture samples reflecting particular and panhuman, ethno-cultural historical parallels; they also expand cultural horizons. Social effect is determined by the community's growing interest to the national culture and its basis - the language, the feeling of a person of any nationality a psychological comfort, increasing tolerance attitudes and behavior within the society.

4.3 Socio-cultural orientation of educational activities at Simbirsk Chuvash teacher's school.

Eethno cultural education's socio-cultural orientation is defined as a process aimed at the students' active involvement in socially useful activity by means of national art, which is approved and evaluated by the whole society.

Let us start revising social and pedagogical effects of ethno-cultural education at modern school by the brilliant representation of ethno-cultural experience implementation at Simbirsk Chuvash teacher's school, established in 1869, directed for more than 50 years by educator in Volga region - Ivan Yakovlevich Yakovlev. At this time, school's prime activity was socio-cultural orientation of students' art education, involving their active participation in socio-oriented activity, which has been highly valued by the communities at Simbirsk and Nizhny Novgorod.

We have identified socio-cultural orientation's social and educational effects of educational process at Simbirsk

Chuvash teacher's school, which are reflected in following achievements:

1. Famous concert programs at Simbirsk. Simbirsk scientific archive commission offered to arrange a Chuvash song concert, which took place in January 19, 1909, all the items were full on "encore." Folk music collected during the expedition of 1902, in 1909 had been published a by Yakovlev under the name «Chuvash folk songs tunes and texts to them" (Part 1). When opening school at Large-Arabusinskaya village within Buinsk district in October 1, 1897 school choir's first performance took place (organized and supervised by graduate M. Danilov). This school choir performed as well at the National Exhibition in Nizhny Novgorod in 1896. Main opera scenes of M. Glinka's "Life for the Tsar" ("Ivan Susanin") were staged at Simbirsk in 1913.
2. N. Nekrasov's pictures on Chuvash themes were exhibited in Moscow and international exhibitions. The teacher Myron Timophey organized painting lessons at Ishakovskaya Chuvash teacher's school. A secondary school teacher N. Superanskiy arranged molding lessons at Yadrinskaya girls' school: his students entered Kazan art school afterwards.
3. Arts and crafts training was organized at Bichurinskaya, Alikovskaya, Hochashevskaya two-year schools and some others. Their importance cannot be overestimated: natives from Yakovlev's school, already being national teachers, recreated ancient folk crafts on professional level. Furniture samples: tables, cabinets, chairs were displayed at exhibitions in Kazan, Simbirsk, Nizhny Novgorod, Moscow. For this tremendous work, the school was awarded with the gold medal in 1896. Purely pedagogical value of manual labor Yakovlev expressed in the following words: "The appointment of manual labor is to develop manual smartness, visual estimation and elegant taste."
4. Traditional folk festival Akatui "with dances, Chuvash folk games, contests, with girls presenting embroidered shawls was a great event for Simbirsk, it also was a vivid demonstration of spiritual and artistic culture samples of people that tightened together Russian city's multicultural environment where Chuvash people live.
5. Textbooks, spelling- books, Russian poets and writers translations had been published by own strengths. K. Ivanov had particularly distinguished at translation work. Such ethno-cultural education organization has facilitated to Simbirsk Chuvash teacher's school to become a real center of Chuvash people spiritual culture, and to formation of professional art of Chuvashia (Kuznetsova, 2014).

Socio-cultural orientation ethno-cultural education is defined as a process aimed at actively including them in socially useful activity, by means of art, approved and evaluated by society.

4.4 Social and pedagogical effects of schoolchildren's ethno-cultural education at Chuvash Republic

The effectiveness of ethno-cultural education can be measured, first of all, by the effects on the student's environment, the way it changes it to the enrichment with ethno-cultural values, and secondly, it can also be measured by student's new acquiring in the personal and cultural-educational spheres. All this aspects can be reflected in the emergence of social and pedagogical effects.

As scientists understand, "social effect" related to effect in society, firstly, it's a unique tool for creating "favorable conditions for the full development of the individual, the ability for citizens to apply their creative powers and abilities, which ... is reflected in hard physical labor reduction, an increase in free time, material and cultural improvement of living standard and health protection"(Ivushkina, 2001). Secondly, scientists understand this social effect as a result received by the society performing a certain kind of work, and as a source or tool to develop society as the main link in the chain of continuous reproduction of social life (Atamanchuk, 1971).

The experience of Tsyvilsk Secondary School №2 confirms the second fact, namely, implementing school program " Lets preserve our national traditions " children had been actively involved in artistic activities, entering a society, enriching it with new creativities (exhibitions, concerts, volunteer action and charity, creation of artistic works (products), interior appointments and aesthetic design environment), which are based on aesthetics and artistic taste. During such activities, children created themselves an ethno-cultural space, the cultural soil that nourishes their implementation of creative ideas for social projects.

The result -the social effect- out of this activity was the growing interest of parents and adults to folk festivals, traditional crafts, their appearance among the participants of Chuvash arts and crafts school exhibitions (embroidery, wood carving, patterned weaving, felting etc.) Moreover, grandmother and great-grandmother started bringing to school vintage designs of utilitarian objects, Chuvash embroidery samples on shirts, headband (Masmak), headbands (Surban) and towels. National holidays' moral potential held in the school with their parents could not be overestimated: thanks to parents and adults initiative family competitions started taking place, as well as exhibitions and calendar holidays from cultural traditions of Russian, Chuvash, Tatars.

We found a definite pattern during the study: the specific ethno-cultural education not always and not necessarily reflects in the form of social or pedagogical effect. The results had been confirmed by a survey conducted at schoolchildren's secondary school № 62 in Cheboksary named as "a student's attitude to Chuvash language study." This survey (152 participants among pupil) among pupil of 1-4 and 5-8 grades showed the following: 80% of students in grades 1-4 showed profound interest in Chuvash language study; 5-8 classes were slightly less interested - 70% of pupil, 60% in 5-8 grades gave answers showing their civic and patriotic position. These results prove the correctness of ethno-cultural approach to Chuvash language study, since for many pupil Chuvash is a non-native language, the fact that school is implementing a program "Integration of Chuvash art culture and language at elementary school."

This example shows that language is as a part of culture, and its learning is reflected in social and pedagogical (educational) effects: upbringing language culture, yielding pupil as active citizens, brining feeling of love for their motherland and national tolerance.

5. Discussions

Ethno-cultural education problems are considered in works of T.N. Petrova (2014), S.N. Fedorova (2008), E.R. Khakimov (2000) and others. They emphasize the need to introduce ethnic culture during learning process, to educate and create national-cultural education and multicultural environment, providing functionally students' activities with a variety of forms and methods in order to get familiar with their national culture. It is in a unity on an equal basis that national culture, introduced in educational process, contributes to the harmonization of interpersonal and inter-ethnic relations. However, their works do not consider the impact of ethno-cultural education through the prism of social and educational effects, which is a subject of our study.

6. Conclusion

If we underline the socio-cultural continuity of experience at ethno-cultural educational process at Simbirsk Chuvash teachers' school having modern teaching practices, with the perspectives of ethno-cultural education at modern schools, we can define several aspects:

- Orientation on practice within artistic education, (creation of exhibition samples, souvenirs and other applied purposes);
- Creation of the atmosphere perception of spiritual and artistic values of pupil in class through the integration of different art and folk art types (music, oral literature, ethnic performances, folk games and dances, handicrafts, traditional costume);
- students' and teachers' joint activities aimed to create and enrich artistic environment at school and in the surrounding society;
- exhibitions and concerts organization, volunteer and charity shares, creation of artistic works (products) in the interior appointments and aesthetic design environment, which are based on aesthetics and artistic taste.
- Thus, our research has allowed us to consider social effects as a result of modern ethno-cultural education, they are reflected at different levels:
- level of general education among schoolchildren at school society and at family level. At the level of education among schoolchildren, the main social effect is obtained because of ethnic and cultural education. It is meant to develop the individual as a human of culture, the ethno-cultural knowledge volume and the ethnic and cultural activities experience contribute to the development of an independent position within human of culture (national, universal);
- At school society level – school environment improvement (educational, subject, informational); ethnic and cultural development intensification and student's self-development; increasing number of students involved in different kinds of events and activities, clubs, and ethnic and cultural spheres;
- At family level – an ethno-cultural family's socialization (the feeling of kinship, native language speaking level, having family traditions, and others).

Pedagogical effects from ethno-cultural education are characterized by the fact that pupil: start forming a stable interest and need for the development of ethnic and cultural values; accumulate baggage of ethno-cultural knowledge; develop a sense of belonging to the history and culture of their people; skills to perceive ethnic and cultural values are developed in the unity of all folk art components; develop associative thinking based on the perception of artistic samples of folk art in triad format: "word-music-pattern"; creative consistency is formed as a sustainable creative attitude willing to express themselves in a creative work; develop artistic taste, sense of beauty, based on national ideals.

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The Supplementary Education Teacher's Portfolio: Essence, Functions, Structure and Design Principles

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Abstract

The article discloses the contradictions, which define the necessity and possibility to use teacher's portfolio in the system of children's supplementary education. It gives the author's interpretation of the concept «supplementary education teacher's portfolio», defines objectives, the portfolio functions and the principles of its design. The article offers the author's structure of the supplementary education teacher's portfolio, which reflects the main directions of the teacher's professional activities, allows demonstrating the achievements and the results of these activities. The authors describe the alternatives to use the portfolio in supplementary education. The article reveals the risks of portfolio implementation in the institutions of supplementary education. Practical recommendations for the teacher's portfolio development given in the article are practice–oriented. The article addresses the administration and the teachers of the children's supplementary education institutions, the lecturers of the teacher's training colleges, who train future teachers of the supplementary education as well as the educators of the extended education within the process of the professional skills improvement for supplementary education teachers.

Keywords: *a supplementary education teacher's portfolio; children's supplementary education; objectives; functions; structure; the principles of designing the supplementary education teacher's portfolio.*

1. Introduction

The changes occurring in Russia nowadays resulted in the new requirements to the system of supplementary education. There is an objective to improve the quality of the supplementary education services through the variety of the curricula, meeting both the needs and interests of each child, and the society in general. Today the professional activity of a supplementary education teacher shall be aimed at creating all the conditions in the pedagogical process for children's education, development and self-development as well as to select the better options for self-expression (Seryakova, 2005). There is a necessity in modern means of supplementary education teacher's activity quality evaluation, presentation of their achievements and results in different areas of their practical activities. A portfolio can be one of these

means.

The necessity and possibility to use the supplementary education teacher's portfolio is caused by the necessity to settle the following contradictions:

- between the values of education humanistic paradigm and the formal approach in evaluating the quality of the supplementary education teacher's activity;
- between the outdate system of the supplementary education teacher's activity evaluation in the institutions and the modern requirements to the system of supplementary education and the quality of the educational services rendered (Loginova, 2008);
- between the need in innovations to the staff management of the supplementary education institutions and the lack of the adequate form of the work with the supplementary education teachers.

A supplementary education teacher's portfolio – is the technology of actual achievements' definition, accumulation registration, classification, assessment, as well as presentation of the results of educational, diagnostic, methodic, research, self –educational, social and other activities of the supplementary education teacher within a certain period of time, displaying the availability of the educator for self-actualization and self-development.

The objectives of the supplementary education teacher's portfolio are like follows: to motivate teachers to improve the quality of the professional activity and design the individual strategy of the personal and professional development; to monitor the quality of the supplementary education teacher's professional activity; to create a healthy competitive environment, determining the conditions for an effective professional career; to ensure impartiality, periodicity, openness of the teacher's activity assessment, to ensure efficient certification of teachers; to develop the skills of reflexive and evaluation activities. (Tregubova, Sahieva, Masalimova, 2008).

The main functions of the supplementary education teacher's portfolio are like follows: motivational-presentation – increases motivation to the professional activity allowing the teacher to provide its results in dynamics; educational-forming – contributes to the acquisition of new knowledge, development of the existing competencies, formation of the new ones, development of creative activity; projective-simulating – helps to design one's own model of the individual educational route and professional development; reflexive-evaluating – allows overall integrative assessment of the educational, professional, personal and other achievements of the teacher, of common cultural and professional competencies development level, provides the opportunity to develop skills in reflective and evaluative activities (Sahieva, 2011).

2. Literature Review

The problems of children's supplementary education organization and development were considered in the works of A.G. Asmolov (1997), V.A. Berezina (2007), L.N. Builova, N.V. Klenova (2005).

The works of Z.A Kargina (2009), B.V. Kupriyanov (2009), S.A. Pisareva (2003) are dedicated to the practical aspects of the supplementary education teacher's under current conditions.

The issue of the portfolio to be used in the educational work is disclosed in the works of the following domestic researchers: L.P. Makarova (2010), M.A. Pinskaya (2009), M.M. Potashnik (2009), L.A. Pronina (2009), V.K. Zagvozdkin (2010).

The numbers of foreign researchers have devoted their work to the problem of portfolio: D. Baume (2001), J.E. Jones (1994), M. Kimball (2002), F.L. Paulson, P.R. Paulson, C.A. Meyer (1991).

However, currently the problem of portfolio design and use by the supplementary education teacher is an insufficiently investigated area of theoretical and practical knowledge.

3. Methodological Framework

The framework of the supplementary education teacher's portfolio is made of the following design principles:

- competency building approach (assessment as per the teacher's activity results);
- comprehensiveness (comprehensive assessment with the different forms of activity results' presentation (documents, works, references, expert assessments and etc..);
- authenticity (conformity of the material provided with the actual status);
- continuity (the material provided shall reflect the dynamics of the teacher's activity broadening, the professional growth);
- optimality (development of the portfolio is not a goal in itself, it shall facilitate the improvement of the professional activity, development of the common cultural and professional capacity).

4. Results and Discussions

Developing the teacher's portfolio structure one should keep in mind that it can vary depending on the goals set, the institution's specifics, professional activity of the teacher and some other factors.

4.1 Supplementary education teacher's portfolio structure

Explanatory note/introduction

where in a free form one should specify which materials are included into the portfolio and give proof that these materials are the evidence of the teacher's professionalism and competence.

Section 1. General information on supplementary education teacher

1.1 Curriculum vitae

2.2 Autobiography

Note. The copies of the confirming documents (the copy of diploma on the basic professional education, the copies of the qualification documents, document on honors and government awards) can be attached at the end of the section.

Section 2. Educational work

2.1. Educational creed/ Educational essay/ Educational philosophy/ Educational concept (depending on the teacher's experience in the educational field)

2.2 Implemented curriculum or educational project that brings together several curricula (information on the programs' expertise, if any)

2.3 Course schedule

2.4 Program for work with gifted children

2.5 Technologies, methods and techniques used

2.6 Information on the demo lessons and master classes performed (№ , date, subject, group, level)

Note. The best lecture notes/demo lessons and master classes plans (for the last 5 years or from the last certification); copies of the lessons's analysis , masterclasses of the methodical association's Manager, management, expert committee members, and the self-analysis of the lessons conducted can be arranged at the end of the Section.

Section 3. Educational process monitoring

3.1. Monitoring of the educational program perception by the trainees

3.2 Information on the enrollment by year

3.3 Monitoring of the trainees' personal qualities, abilities, general cultural level and good manners development

3.4. Results of pupils' participation in contests, festivals, concerts, academic competitions, competitions, exhibitions and etc. (№, date, name, group, level, organizers, results)

3.5 Continuity of education (information on the trainees' entrance to industry-specific colleges or other higher educational institutions) (№, year, name of the pupils, full name of the educational institution, specialty/major)

Section 4. Methodological activity

4.1. Methodological subject (№, subject, term, expected and actual results (intermediate, final)

4.2. Methodological support of the educational program (№, name, type (designs, study- guides, practical suggestions, instructions, instructional designs, training hand-outs and etc.), the date of creation, annotation, form (printed, handwritten, audiovisual, computer, etc; if printed, the output data is issued according to requirements of GOST), volume in sheets (s.) and printed sheets (p.s.), circulation, co-authors, the method of distribution (available in the methodical office, available on web-site, Internet, publication)). One can provide the reviews for the study-guides, designs and etc.

4.3 Information on public speaking at creative team meetings, methodological associations, professional associations and communities, teachers council, meetings, methodological workshops, conferences of different levels (institution level, district, municipal, republican, all-Russian, international) on the methodological subject or problem (№, date, address subject, organizers, location, level)

Note. The summaries of the public speaking at the methodological workshops are attached.

4.4. Leadership of the methodological association, taskforce on the actual subject, tutorship (assistance to young colleagues, assistance in the further certification of the colleagues, assistance in portfolio designing and etc.)

Section 5. Innovative, research, experimental activities

5.1 Information about writing a thesis (diploma) work/master thesis (for new teachers) (the date of defense, subject, thesis supervisor, name of the educational institution, specialty/major),

Information about writing a thesis (diploma) during professional retraining (the date of defense, subject, thesis supervisor, name of the educational institution, specialty/major),

Information on Master thesis/Doctoral thesis/thesis (the date of defense, subject, stages of writing, scientific advisor, specialty, leading company)

5.2 Information on research, experimental activities (№, date/terms, subject/range of problems, objectives, scientific advisor /and (Name, degree, title, job), the results of the research, experimental activities, reporting form)

5.3 Information on participation in Overseas Research Students Awards (№, date/terms, name/grant subject, objectives, organizers, form of participation, level, results, reporting form)

5.4 Information on public speaking at Research and Practice Seminars, conferences of different levels on the subjects of research and experimental activities (№, date, speech subject, organizers, location, level)

Note. Best speech summaries at Research and Practice Seminars, conferences are attached.

5.5 The list of scientific publications (№, name, type (concept, monograph, article, theses and etc.), output data, volume in sheets and printed sheets, circulation, co-authors)

5.6 Information on own site creation or the site of children/teenager group, professional blog or weblog running and etc.

Section 6. Educational and social activities

6.1 Information on participation in the social activity (social movements, funds, actions, elections of different levels, development of socially-minded projects, programs, social initiatives and etc.) (№, type, organizers, date, level)

6.2 Information on the volunteer and charitable activities (charitable actions and actions for disabled children, orphans, the children of migrants, senior citizens, war and labour veterans and other voluntary initiatives)

6.3 Arrangement of work in children's educational institutions, schools, grammar schools, lyceums, other educational institutions, voluntary and etc.

6.4 Arrangement of work with pupils' parents and supervising teachers

6.5 Arrangement of educational and leisure activities (№, date, name of the event, form (tour, discussion, exhibition, poetry/music session, festive events and etc.), participants, level).

The best summaries of educational and leisure activities shall be attached.

6.6 Arrangement of health-improving and sporting activities (№ , date, name of the activity, form of presentation (hikes, relay races, marathons, competition, sports events, Health day and etc.), participants, level).

The best summaries of health-improving and sporting activities shall be attached.

Section 7. Information on self-education, skills upgrading, professional retraining

7.1. Individual self-educational program, including goals, objectives, content, self-educational activity (№, subject/problem/self-educational program, terms, expected and actual results (intermediate, final))

7.2. Information on reciprocal visiting of classes (№, date, subject, name of the teacher whose class you visited, form, group, brief analysis)

7.3. Information on participation (without public speaking) in the methodological associations of the different levels (№, date, themes, organizers, location, level, status (listener, discussant of the declared issues)

7.4. Information on participation (without public speaking or publication) in seminars, conferences and etc. of the different level (№,date, themes, organizers, location, level, status (listener, discussant of the declared issues). Here one can submit the programs of seminars, conferences.

7.5. The list of reviewed psychology, pedagogical and methodic literature and etc. by year with annotation (№, year, book title, author/s, publisher imprint, blurb)

7.6 The list of electronic educational and self-educational resources (licensed and independently created)

7.7. Information on qualification upgrading courses (date, subject/range of problems, location, institution/organizers, number of hours, the issued document, registration number). Copies of licenses, certificates, reference on qualification upgrading courses are attached.

7.8. Information on professional retraining (date, location, organizers number of hours, (specialty)/major (profile), subject of the graduation thesis, document, registration number). The copy of the diploma on professional retraining is attached.

7.9 Information on the postgraduate, doctoral or PhD studies.

Section 8. Self analysis of the professional activity

Self-analysis and self-assessment of the educational, diagnostic, methodical, innovative, research, experimental, self-educational, social and other activities, formed and developed competencies, experience in the creative activities, growth in the self-educational competence, written in a free form.

Section 9. The strategy of further self-development

In this section the teacher determines the plans for the future, the further ways of self-improvement, self-development, which is particularly topical in the new paradigm of advancement of education «education throughout life».

Note: information provided in the section shall be specific. For instance,

1. Participation in theoretical and practical conference «Psychological-pedagogic support of the educational process in the institutions of the supplementary education» - March 25, 2015.

2. Open lesson «Decorative-applied art» - April, 16 2015.

3. Participation in theoretical and practical conference « Supplementary education of children and young people: development strategy» with the report/thesis «Supplementary education of children and young people development tendencies within Russian and abroad», as well as publication of the report/thesis – May 25, 2015.

4. Training of the pupils for the district competition (name of the competition, location) – October 10, 2015 and etc.

8. Development of common cultural and professional competencies, self-educational competency (lifelong)

Section 10. Professional achievements

10.1. Participation in the professional competitions, amateur festivals, exhibitions and etc. (№ , date, name, organizers, location, level, results)

10.2. Information on awards and rewards (№, effective date, name of award/reward, who awarded, the reason for award)

10.3 Information on publications regarding the professional activity of the educator in mass media, information on the TV spots and etc. (№, date, name of the publication/TV spot, summary of the publication/TV spot, newspaper/channel). One can provide copies of the publications in mass media, pictures of TV spots and etc.

Copies of confirming documents (certificates, diploma, certificate of appreciation for the participation in professional skills competitions, amateur festivals, exhibitions, document on awards and rewards) are attached.

Note: 1) Management, Head of methodical association, members of Certification Committee can select mandatory sections and points in the proposed structure of the portfolio of the supplementary education teacher, include additional sections and points, according to the target of the portfolio and the certification requirements; 2) the teacher can at his own choice include some additional sections and points into the portfolio, reflecting the professional activity, its specifics, tendency and the individual style.

4.2 Some alternatives to use the portfolio of the supplementary education teacher

To collect and systemize the material between the certification periods, during the certification that will allow to present creative skills along with analysis and self-evaluation of the teacher's work and also to extend boundaries of personal and professional collaboration and cooperation, which will significantly increase the importance of the certification procedures; for self-evaluation and defining the perspective of professional growth; for filling the vacant positions; for occupational change-over.

4.3 Some risks of the portfolio implementation

Rejection of the certification form by some educators, since portfolio compilation is time-consuming process; inability to design portfolio; unstructured work with portfolio; inclusion of the unproven material.

4.4 Practical recommendations to design portfolio

Each section should be dedicated to a certain type of activity of the teacher; every portfolio element should be with the date in order to trace the dynamics of the teacher's professional growth and should be signed by the author, developer, compiler; it's preferable for the portfolio to include the confirming photos; it's reasonable to include the material within the period between the certifications (from the last certification); if the author of portfolio makes complete electronic version it may be supported with different short audio and video records (fragment of the class video-record, of activity, public speaking), electronic versions of the works and etc.; it's reasonable to use two types of portfolio: working, containing all the material available; evaluative (demonstrative), which selects the materials reflecting fully the achievements, the results of the professional activity of the teacher and the progress in the personal and occupational growth.

5. Conclusion

Thus, the portfolio will allow a supplementary education teacher the following: to present the practical experience, the

results of the different professional activities; extend the boundaries of personal and professional interaction and cooperation; trace the dynamics of professional growth and development; develop the ability to analyze and evaluate own activity, compare it with common standards and on this basis correct and improve it; design and implement the individual route and the programs of the professional growth.

Portfolio will allow the management of supplementary educational institution the following: monitor the quality of the teachers' professional activities; define the perspectives for teachers training and professional growth; perform efficient certification of supplementary education teachers; form a healthy competitive environment, determining the conditions for professional career; ensure impartiality and openness of ethical and material incentives of teachers.

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Formation of Professional-Mathematical Competence of Students in the Field of Technical Training Based on Interdisciplinary Integration of Mathematics and Computer Science

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Abstract

The urgency of the problem under investigation is determined by the growing demand in the competent graduates in the field of technical training, who are ready to solve professional problems based on fundamental mathematical knowledge and practical skills, carrying out mathematical modeling of the studied processes and phenomena using mathematical application software packages. The article aims to study the theoretical and practical implementation of the methodic of the professional-mathematical competence forming of students in the field of technical training based on the integration of mathematics and computer science. The major approaches to the study of this problem are competence, integrative and activity to learning which let to identify trends in the development of professional qualities of the student's personality through the integration of various activities by the decision of professionally-oriented tasks, taking into account individual characteristics and needs of the personality at every stage of vocational education. The formation of the professional-mathematical competence of students in the field of technical training through the integration of mathematics and computer science is considered as a target and as a learning process. Its backbone core in the forming structure of professionally-mathematical competence of students in the field of technical training stands out the mathematical modeling. The didactic object of the integration is the exploration and decision of professionally oriented integrative tasks. The materials of the article may be useful for university teachers who give lessons on professional-mathematics courses for students in the field of technical training.

Keywords: *professional and mathematical competence; integration; professionally oriented task integration of character.*

1. Introduction

1.1 Background

Social and economic transformations of modern society have influenced the change of technical students training goals. In the condition of a market economy and the need to use high-end technologies in the production the bachelors are now in demand, those who have a fundamental mathematical knowledge, able to use appropriate mathematical apparatus, to develop new and optimize existing solutions, to surf freely the information space, possessing relevant information and ability to its continuous update. The priority component of students' vocational training is the mathematical training, which contributes to a professional-mathematical competence of a technical graduate.

The main provisions of the competence approach to education are consistent with the idea of mathematics and computer science integration in the professional-mathematical activity of future bachelors. The work with modern mathematical software packages and information and communication technologies forms the students' ability to formulate and solve problems using the computer, its application as a tool of knowledge, organization of search and research activities, reveals the new potential for academic interaction of students and teachers, enables each student to realize

his/her intellectual potential to the greatest extent.

1.2 Explore Importance of the Problem

The feature of a new look at solving the problem of technical training of future bachelors in terms of education informatization is to find approaches to professional and personal development of students and the determination of the content, methods and forms of education. Formation of fundamental mathematical knowledge and skills, as well as their use provision in a continuously developing information tools are one of the conditions for the preparation of highly qualified graduates. Here can play an important role the methods of computer science, which should appear as a tool for the implementation of the integrative links of professionally oriented mathematical activity.

1.3 Integration of Mathematics and Computer Science

The main provisions of the competence approach to education consistent with the idea of mathematics and computer science integration in the professional-mathematical activity of students.

A considerable amount of works is devoted to the study of the mathematics and computer science integration process. In the dissertation of I.N. Polunina (2003) 'the integration of mathematics and computer science courses' acts as an optimization factor of general professional training in the secondary vocational school; 'integrated lessons and their series' become the subject of G.L. Lukankin (2000) and A.N. Pavlov (2002) studies; 'systems of computer mathematics as a means of achieving a high level of integration of physics and mathematics in the personalized education' is considered by V.V. Solonin (2004).

The work with modern mathematical software packages and information and communication technologies forms the students ability to set and solve problems using the computer, its application as a tool of knowledge, organization of search and research activities, reveals new potential for academic interaction of students and teachers, gives each student an opportunity to realize their intellectual potential (Merlin, 2006).

Integrative links between mathematics and computer science are based on the data content of the subject areas. In the process of learning mathematics a logical and algorithmic training of students is forming, skills of building mathematical models of phenomena and processes and for fulfilling numeric evaluation are developing, etc. Computer Science training provides the basis for understanding the information nature of the studied phenomena, allows the formulation and solution of problems in an effective visual form.

1.4 Status of the Problem

Various aspects of definition and formation of the professional - mathematical competence of students of engineering universities have been considered in such dissertations as: G.I. Illarinova (2008), M.M. Minshin (2011), O.A. Valikhanova (2008). Theoretical and methodological aspects of the integration processes in education are analyzed in the works of V.I. Bezrukova (1990), U.N. Kulyutkin (1981), G.F. Fedoretc (1989). Problems of interdisciplinary links in training are considered in researches: G.I. Belenky (1985), V.A. Dalinger (2001), L.V. Zankov (1990) and others. However, methodical aspects of improving of mathematical training of students in the field of technical training, based on the integration of mathematics and computer science and promoting the professional and mathematical competence, are underrepresented in these studies.

1.5 Hypothesis of the research

Analysis of theoretical studies and practical activities in the aspect of the developed problem has showed that issues related to professional-mathematical training of students in the field of technical training is the understudied area of scientific knowledge and practical activities that enabled us to formulate hypotheses of the *research* of this problem: the formation of the professional-mathematical competence of students will be more effective if the learning process of future bachelors is realized through the integration of mathematics and computer science.

2. Materials and Methods

2.1 Objectives of the research.

In the process of study the following objectives have been decided : 1) to specify the nature and structure of the concept "professional-mathematical competence of students in the field of technical training"; 2) to identify opportunities for integration of mathematics and computer science in the formation system of professional-mathematical competence of students in the field of technical training; 3) to develop, justify theoretically and disclose the formation methodic of the professional-mathematical competence of students in the field of technical training based on the integration of mathematics and computer science; 4) experimentally verify the effectiveness of forming the professional-mathematical competence of students in the field of technical training methodic through the integration of mathematics and computer science.

2.2 Theoretical and empirical methods.

To verify the hypothesis it has been used a complex of variety methods, complementing each other:

- theoretical (analysis of scientific and pedagogical literature, teaching experience, abstraction, modeling, synthesis and interpretation of the research results);
- empirical (research of the advanced experience, educational and methodical documentation, pedagogical observation, interviews, questionnaires and testing of students and teachers, pedagogical methodic, pedagogical experiment).

2.3 The base of the research:

Federal State Budgetary Educational Institution of Higher Professional Education "Chuvash State University named after I.N. Ulyanov".

2.4 Stages of the research

At the first stage, it has been studied and analyzed scientific, educational and methodical literature to clarify the state of the research problem, have been defined the initial parameters of the research, has been specified interpretation of the concept "professional-mathematical competence of students in the field of technical training", has been planned and conducted the ascertaining experiment.

At the second stage, there have been identified and justified the main components of the professional-mathematical competence of students in the field of technical training; has been developed a methodic of the competence formation based on the integration of mathematics and computer science; has been considered the content design of training that contribute to the professional - mathematical competence formation of students in the field of technical training; a searching experiment has been carried out.

At the third stage, it has been carried out the formating experiment in order to verify the developed methodic of professionally-mathematical competence formation of students in the field of technical training based on the integration of mathematics and computer science, has beenperformed the statistical analysis of the experimental data, conclusions have been done.

2.5 Meaning and content of the concept "professional-mathematical competence of students in the field of technical training"

The professional-mathematical competence of students in the field of technical training is considered by us as an integral characteristic that determines the ability and willingness of future bachelors to solve problems arising in the field of engineering activities, based on the fundamental mathematical knowledge, practical skills and abilities to carry out mathematical modeling of the studied processes and phenomena with the help of mathematical software packages and information and communication technologies (Vasiliev, 2013).

The professional-mathematical competence of students in the field of technical training is a complex entity comprising several components.

Considering the specificity of future bachelors' technical training and basing on the requirements of the Federal

State Educational Standards of Higher Vocational Education, we believe that the structure of the professional - mathematical competence is a combination of the following elements:

- the motivational component characterizes the presence of values, motives and interests, aimed at professional - mathematical training;
- the cognitive component determines the presence of theoretical and practical knowledge generated in the course of professional - mathematical education and self-education, which provide students with the ability to perform mathematical modeling of studies with the help of mathematical software packages;
- the activity component comprises a set of actions for self-regulation and the ability to make decisions, the elements of professional creativity and self-esteem;
- the reflexive component allows you to solve the problem consciously, to evaluate the process and the result of their own learning and the reproduction of the experience gained in the result of training.

2.6 Features of the mathematics and computer science integration in the structure of professional-mathematical competence formation of students in the field of technical training

The integration of knowledge in the process of professional - mathematical training of future bachelors in the field of technical training is understood by us, at first, as the creation of the students' holistic view about the world and its future profession and, secondly, as the process leading to the goal achievement, during which qualitatively new trends appear in the educational process.

The integration as a goal of education is to form students' understanding of the integrity and coherence of separate subject areas in a single structure, interrelated elements. The integration as a process of learning provides mutual interpenetration and interconnection links of the educational process branches and academic disciplines studied by students. In this process there arise changes that are evident not only in the acquisition of new links, but also in the transition of links into a different quality (formation of the professional - mathematical competence).

System core integration of mathematics and computer science in the structure of the professional-mathematical competence performs mathematical modeling.

The didactic object of mathematics and computer science integration in a holistic approach to vocational training and mathematical formation of professional - mathematical competence is the exploration and decision of professionally oriented problems of integrative nature.

3. Results

3.1 Structure of the concept "professionally oriented problems of integrative nature"

Formation of the professional-mathematical competence of students in the technical field occurs in activity by submitting a variety of tasks and problem situations. Its development is closely linked with the ability to solve professionally oriented problems of a technical nature (Kartuzova, 2010). "Solving professionally oriented problems of different difficulty levels in a specific sequence, students operate on professional terms, acquire the ability to analyze a situation typical for the future professional activities" (Dalinger, 2002). It is necessary that the student to learn how to research mathematical models of processes and phenomena as it is done in a professional activity: by applying mathematical knowledge and information technologies (Svetlov, 2011).

Under the professionally oriented problem of the integration nature we understand the problem promoting the formation of the professional and mathematical competence of students in the field of technical training, which conditions and requirements define an abstract model of a situation arising in the future professional activity of a bachelor, the problem orientating to the balance of the fundamental mathematical knowledge, practical skills and mathematical software packages usage skills (Vasiliev, 2011).

3.2 Criteria for selection of professionally oriented problems.

Based on the analysis of didactic approaches to the formation of educational content authors formulate criteria for the selection of professionally-oriented *problems* used in the framework of the professional - mathematical competence formation of students in the field of technical training through the integration of mathematics and computer science: the content of the problem must be based on a system of basic scientific knowledge, defined by the Federal State Educational Standards of Higher Vocational Education on disciplines of mathematical, science and professional cycle; in

the context of the problem there should be included the main objects of the future professional activity of the technical graduate; integration links of mathematics and computer science and interdisciplinary links with the disciplines of professional cycle must be present in the problem; problem solving process should allow the use of mathematical software packages with its mathematical modeling and research; the link with previously studied program material, the ability to apply the knowledge gained on this topic to the problem solving must be present in the problem; the problem should be available for students of the 1-2 courses; the problem should contain elements of novelty and entertaining to motivate creativity and interest of students.

3.3 The system of professionally oriented problems of integration nature.

Professionally oriented problems of integration nature on mathematics and computer science are presented in three levels of difficulty (reproductive, productive, creative) and correlated with the levels of bachelors' professional and mathematical competence development (low, medium, high).

The process of research and problem solving of integration nature is a process chain which includes a number of stages correlated by authors to the steps proposed by U.M. Kolyagin (1985):

1) modeling – is a construction of a mathematical model of a real situation, the transfer of the original problem into the language of mathematical symbols and operations. At this stage students learn to analyze the problem highlighting the essential relationship between the data, determining the completeness of the initial data, describing those provisions and their relationships that are defined in the condition by mathematical symbols;
2) the study of the constructed model by methods and tools of mathematics and computer science. At this stage students learn how to choose the most appropriate method to solve this problem, to choose methods and sequence of actions, to use an auxiliary mathematical apparatus, to separate complex problems into a series of simple subtasks; to create an algorithm for solving the problem and encode it in a programming language, build a computer model using the software package;
3) interpretation is the correlation of the result with the initial situation, that is the transfer of the answer into the language of professionally oriented problems. At this stage students learn to make qualitative conclusions based on their response, to identify relevant results of this situation, to assess the meaning of the problem in the field of professional activity.

3.4 Examples of professionally oriented problems of integration nature

Let us consider the examples of professionally-oriented problems of integration nature "Ordinary Differential Equations" aimed at forming the professional-mathematical competence with the sequencing all stages of their research and solution.

Problem 1 (reproduction level) A condenser of C capacity switches on in the circuit with voltage *U* and resistance *R*. Determine the charge *q* of the condenser at the time *t* after its switching on.

Stage 1. To bring students to the construction of a mathematical model presented in the problem situation, the teacher may ask a series of leading questions to actualize the motif:

- How to submit the power *i* of an electric current?
- What is the electromotive force acting in the circuit?
- How is formulated the Ohm's law? Is it possible to use it in this case?

After answering the questions, students receive a linear differential equation of the process:. $R\frac{dq}{dt}=U-\frac{q}{C}$.

Stage 2. Further, at the math lessons students solve linear equations by the known method. $q=CU-C_1e^{-\frac{t}{CR}}$, where C_1 - an arbitrary constant - the general solution. Using the initial conditions, we get the solution of the Cauchy problem in the way $q=CU\left(1-e^{-\frac{t}{CR}}\right)$.

On computer science laboratory lessons, using the Matlab package, students are looking for the numerical solution of differential equations defining the following characteristics *R*=2000 Ohm, $C=10^{-6}$ F, *U*=10 V (Fig. 1).

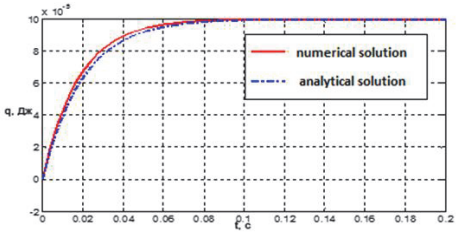

Fig. 1. Visualization of the differential equation solution

Stage 3. Students conclude that the charge on the condenser increases until it is completely saturated with a time *t* = 0.1 c.

Reproductive level problems aimed at the development, acquiring and application of basic concepts, formulas, theorems. They require the ability to use known facts in a familiar situation, standard methods, both from the field of mathematics and computer science.

Problem 2 (productive level) electric current during passage through a microprocessor and other components of the electronic device generates the heat. The heat-removal heatsink, equipped with a fan, is used. Find and construct a dependency graph for a temperature *T=T (t)* as a function of time. The airflow is automatically activated if the temperature of the microprocessor and heatsink exceeds the limit ($T > T_{\max}$) and switches off, if $T < T_{\min}$ (Fig. 2). The fan's switch on is equivalent to a change of heat-exchange coefficient α according to the law: $\alpha = \begin{cases} \alpha_0, \text{если } T \le T_{\min} \text{ или } T < T_{\max} \text{ при } dT/dt > 0 \\ \alpha_1, \text{если } T \ge T_{\max} \text{ или } T > T_{\min} \text{ при } dT/dt < 0 \end{cases}$, where α_0 the heat-exchange coefficient with the switched off fan, α_1 - heat-exchange coefficient at the air-flow.

Determine the section of the dependence T(t) in which the cooling system enters the operating mode $T_{\min} < T(t) < T_{\max}$.

The parameters of the radiator are set by a teacher and may vary.

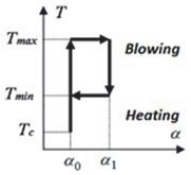

Fig. 2. Air-flow switch on and switch off

Stage 1. Formalizing the problem, the students get a mathematical model described by the differential equation $cm\frac{dT}{dt} = P - \alpha S(T - T_c)$, where *m* and *c* - mass and specific heat of the radiator's material, *T* – radiator's temperature, *t* – time, *P* - released microprocessor's power, $\alpha S(T - T_c)$ - removed heat, α - convection heat-exchange coefficient, *S* - the surface area of the radiator, T_c - environment temperature.

Stage 2. At the math lesson students, using a known method for solving the differential equation with separable variables, determine the required formula for the temperature *T=T (t)* as a function of *t* – time. At the lesson on computer science using numerical methods is calculated the dependency section *T(t).*

Stage 3. Depending on the parameters students conclude for what values $T_{\min}$ and $T_{\max}$ the system goes to the operating mode.

The problems of productive level are applied to facilitate the learning process, securing reproductive abilities and transition to a productive level. The algorithm for solving these problems is not typical, but still familiar to students. Students need to establish a link between the data in the problem and to search for the optimal solution.

Problem 3 (creative level) in a sequential circuit there are observed autonomous oscillations at the absence of an external source and charged at the time of closure of a switch S of a condenser (Fig. 3). At time t = 0, after closing the switch S condenser is discharged through a circuit with a coefficient of self-inductance L and resistance R. Find the law of voltage change $u_c(t)$ on the condenser plates with initial conditions $u_c(t=0) = U_0$, $u_c'(t=0) = 0$.

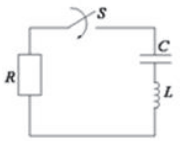

Fig. 3. Electric circuit

Stage 1. On the basis of Kirchhoff's laws the mathematical model of the problem is described by the differential equation $\frac{d^2u_c}{dt^2}+2\alpha\frac{du_c}{dt}+\omega_0^2u_c=0$, where $\alpha=\frac{R}{2L}$ - attenuation factor, $\omega_0^2=\frac{1}{LC}$ - the natural frequency. The received differential equation is a linear homogeneous differential equation with constant coefficients.

Stage 2. Investigation of the model constructed by means of mathematics and computer science for three cases of solving of corresponding characteristic equation: $D<0$, $D=0$, $D>0$

Stage 3. Interpretation of received solutions is carried out by teachers together with students in all three cases.

Creative level problems are connected with intensification and development of knowledge. A certain intuition, thinking and creativity in the selection of mathematical tools requires for their solution. The algorithm of actions is developed by students independently.

4. Discussions

Intensive improvement of new technologies in many areas of engineering activity produces high demands to the future bachelors training, their professional and intellectual qualities, abilities to solve emerging challenges creatively.

Great opportunities for enhancing the formation of the professional-mathematical competence of future bachelor in the field of technical training has the interdisciplinary integration of mathematics and computer science, which involves an organic combination of objectives, a content, methods and forms of educational process organization, as well as control means of the planned result. It allows students to fully realize the professional - mathematical component of education, as well as the main directions of modern strategy of the technical education development in the context of modern society informatization.

One of the conditions of formation of the professional - mathematical competence of students in the field of technical training is the activity on solving professionally oriented problems.

Professionally oriented problems implement integrative links of mathematics and computer science, as well as interdisciplinary links with the disciplines of professional cycle; they help to shape the ability to apply mathematical concepts in solving problems of professional field; to conduct professional reading of mathematical graphs. The use of mathematical software packages allows you to display intermediate results, to plot graphs of intermediary variables, to analyze the results of the calculation when the parameters of the problem have changed, finding the most optimal solution.

5. Conclusion

As a result of activities on solving professionally oriented problems of the integration nature the students form their own education need in the development of generic methods and techniques of training activities; there are formed the abilities to analyze the situations, considered in problems, and to solve problems of different levels, using mathematical apparatus and information technology tools. The solution of problems contributes to the personal creative activity, shows the relationship of mathematics, computer science and special disciplines and focuses on the relationship with their chosen profession, helping to form the professional-mathematical competence.

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The Synergetic Approach to Liberal Education of the University Students

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Abstract

The thematic justification of this problem is driven by the emergence of a new stage in the development of liberal education of the students, where the most important idea is the synergy - the interdisciplinary field of research that sets its strategic objective to employ the limelight principles underlying the processes of students self-organization while studying the liberal arts. The purpose of the article is theoretical and methodological underpinning of the synergetic approach to liberal education of the students. The paper presents the theoretical foundations of the synergetic approach to liberal education in university that are expressed in the key concepts; in a trinity of the educational purposes-attractors; in the principles keeping the continuity of traditional and synergetic ideas; the functions determined by the essence and characteristic synergistic indications of liberal education; in the structure and content of the synergetic model of liberal education; in pedagogical conditions of employing the synergistic approach in liberal education (basic components of liberal education of the students). The article submissions may be useful for the specialists in the field of synergy, the researchers in the system of continuous professional education, the academic staff of the universities. The research is also recommended for the undergraduates, graduate students and students of universities specialized in research, the students of the continuous education and retraining.

Keywords: *synergetic approach; self-organization; synergetic principles; synergetic technologies; interdisciplinary teaching module.*

1. Introduction

1.1 Background

The development, use and further growth of high technologies in the areas of domestic production, the introduction of computer and information technology have set a compulsory objective of educating a new type of specialists, intellectual professionals who are competent in relevant professionally-important competencies, personal culture and education in the liberal arts. To achieve the objectives of the Federal State Standards of higher vocational education (FSES) in liberal

education the problem of implementing the innovative concepts, approaches and paradigms emerges actual. The specialists (Andreev, 1996; Budanov, 2013; Vyugina, 2015; Zeer, 2000; Novikov, 2000) have found that the most promising, notable approach to liberal education of the future specialists of high-tech industry is now becoming a synergistic approach as a methodological principle of learning the mechanisms of the students' and teachers' self-development, self-organization of the scientific knowledge focused on multi-dimensional, multi-component and polyphonic (alternative and variable) knowable processes of modernization of liberal education, on discovering the unsolved or unrevealed conditions that are intended for openness, co-creation, self-development, awareness of the contingent probability in their development. These directions prevail since they create an educational environment for liberal education of the students that anticipates the requirements of FSES of higher vocational education and the labor market demand in creative, self-actualized specialists. The pragmatic interpretation of the synergetic approach to liberal education involves the enriching the teaching process with the ideas of self-organization and self-development of the students in the process of designing and implementing the interdisciplinary teaching modules of the humanities.

1.2 The theoretic and methodological novelty of the problem

The existing educational concepts of liberal education in universities and their identical organizational structures of liberal education lose their effectiveness and ability to act as the leading areas of teaching theory and practice. These trends are largely conditioned by the lack of scientifically-grounded approaches to the development of innovative, theoretical and methodological foundations of liberal education, reconsidering the content and meaning of the key concepts, the essence, the principles, the functions and conditions for eliciting their educational potential, capable to provide self-organization and self-development of the student's individuality while studying the humanities. The requirements of the FSES in vocational education operating in the educational practice of higher school state the necessity of rapid development of the conceptual approaches to modernization of liberal education in which the identity of the student and his full, harmonious, universal holistic, creative development becomes a systemically-important factor. According to the results achieved by the leading specialist in the pedagogy theory and practice (Andreev, 1998; Makhmutov, 1993; Novikov, 2000; Talanchuk, 1993) the design and implementation of the theoretical and methodological foundations of the conceptual approaches involve: reconsidering the discursive content of the conceptual and categorical apparatus of liberal education enriched with synergy ideas; the definition and identification of the objectives, principles, functions and pedagogical conditions for self-transformation and self-development of the students in liberal education, design and development of the interdisciplinary teaching modules of the humanities and other types of curriculum papers.

1.3 Pragmatic relevance

The practical relevance involves updating and rethinking of the structure and content of liberal education through implementing a synergetic model in education, using the courseware of the liberal arts based on the interdisciplinary teaching modules, programs, methodical projects of the scientific support of liberal education.

1.4 Literature Review

The theoretical and methodological foundations of the synergetic approach to students liberal education lie on the research of the specialists, structured according to their application: a philosophical approach (Zapesotsky, 2003; Prigozhin, 1986; Haken, 1984); the methodological foundations of synergy in education (Andreev, 1996; Vinenko, 2001; Knyazeva, 1991); the concept of self-organization in pedagogy (Boguslavskiy, 1999; Budanov, 20013; Fedorova, 1997).

The theoretical foundations of the synergetic approach to liberal education of the students are expressed in the contents of the key concepts (synergetic approach, self-organization, synergetic principles, synergistic technologies, interdisciplinary teaching module), the trinity of the liberal arts educational purposes (the strategic one is forming liberal education awareness and individual culture of the student, the tactical one is developing readiness of an individual to self-organization and self-transformation, the operational one means formation of the competences of the individual self-organization in the process of studying the humanities), in principles that preserve the continuity of the connections between traditional and synergetic ideas (conceptuality, systemacity, fundamentality, integrity, innovation, hierarchy, homeo-statics, nonlinearity, instability, incompleteness, emergence, self-actualization), in the functions determined by the synergistic essence and its performance in liberal education (methodological, self-organizational and synergetic contact interaction between the teacher and the student, professional and personal focus of liberal education on individual student's adaptability to the learning process, information support of the liberal arts education), in structure and content of

a synergetic model of the students' liberal education, in pedagogical conditions of the synergetic approach realization (basic components of liberal education, synergistic technologies, synergetic project of the curriculum papers, criteria for the evaluation of the synergetic approach productivity in liberal education).

1.5 The methods of research

To achieve the goals and objectives of the study we have involved a range of methods: the analysis of philosophical, pedagogical, psychological and methodological literature considering the classification within a reasonable set of parameters; studying and generalization of mass and advanced pedagogical experience in liberal education of the university students; observation of the students' educational activities and obtaining quantitative indicators, written and oral surveys; the analysis of traditional and innovative syllabi, teaching modules, the coursebooks and teaching aids. The complex of the diagnostic procedures include: pedagogical observation of the educational process; testing the students and the liberal arts teachers; a natural pedagogical assessment (summative and formative); designing and testing of the interdisciplinary modules based on synergetic principles of self-organization and self-transformation and encompassing a complex of content-related, technologic and criteria-based devices; problem solving; business games; statistical and analytical data processing of the experiment; the Delphi technique.

1.6 The performance and criteria of the synergetic approach efficiency in students' liberal education

The indicators: availability, depth, the range of liberal, scientific, general professional, special and practical knowledge joint with the students' experience.
The criteria:

- the knowledge (advanced knowledge and proficiency in a particular specialty, philosophical, political, historical, literary-linguistic, psycho-pedagogical, legal, artistic and creative and other basic knowledge, its system, a high level of generalization that meets the requirements of education, high personal culture, social and professional competence);
- the needs (in communication, self-realization, understanding, cognition, self-respect, self-determination, reflection, understanding the meaning of life);
- the ability to generate new ideas and use non-standard work methods, to transfer knowledge and modes of behavior to new non-standard situations in professional, socio-cultural, family and home life;
- the axiological orientations (worldview, vocational, inventive, creative), norms, ideals, values, judgments couched in clear terms, students' opinions, behaviors in the course of work on research projects.

2. Methodological Framework

2.1 The synergetic discourse of the key concepts.

The results of the research have allowed us to specify and rethink the key concepts of the content of the students' liberal education in university within theoretical and methodological positions of the synergetic approach:

- The synergetic approach is a theoretical and methodological strategy focused on the implementation of the advanced objectives, principles, functions, content, technologies of the liberal education of the student's personality as a self-organizing and developing system capable of reflection and self-transformation which allows to rethink the particularities of the students' liberal education, to create new conditions to elicit their creative abilities, to thoroughly evaluate the changing variety of the principles, ways and methods of developing a creative activity in the course of liberal education, to set the process of students liberal education free from unilinearity and dogmas which allow for multifunctionality and multidimensionality of the educational theories and hypotheses;
- Self-organization is a self-consistent functioning of the student as a subject of study through direct communication and feedback from the external environment. The environment at this stage of research is represented by the process of liberal education of the students that is capable of self-transformation and self-development due to such characteristics as dynamics, interdisciplinarity, informativity;
- The synergetic principles are the principle of acknowledgement of an inherent value of each individual; the principle of fluctuations (deviations) of creative thinking; the principle of contradictory process of liberal education; the principle of dissipation (self-forming) of the creative abilities as a core of liberal education; the

principle of a single tempo-world (the development rate of the student and the teacher); the principle of the age-dependent sensitivity (opening and closing opportunities of the individual student where the moment of opening is the moment of truth, of sensitivity);

- The synergistic technologies - the synergy of the technologies is primarily determined by the fact that they provide transition from the arrangement of educational process by a teacher to the transformation and organization of the process by the trainees themselves. These processes are based on the changes of the axiological attitude of the students to acquiring liberal education as to the process of self-discovery, self-determination while reconsidering the presented educational information. All the educational activities of the student appear as a creative activity which is characterized by three types of operations: logical, intuitive, heuristic. In the technologic process of self-organization and self-education the educators solve the problems of liberal education mediated by the choice of identical technologies: at the level of the curriculum these are the technologies of the educational process arrangement (lectures and seminars, interactive, problem-based, design-based, modular competence-based ones); at the level of cyclic goals suppressing any variation in the curriculum and programs which have arisen under fluctuations (the external influences on the process of the liberal education development), effective technologies of the theoretical, practical and industrial training: modular, design, online, context, and of other fields. The specific course objectives are implemented in the intermediate training technologies taking into account the characteristics of the studied subject. The objectives of individual activities involve the use of certain technologies: the formation of the competencies of self-transformation, self-organizing, self-learning, critical thinking, analysis and introspection of the behavior and activity, decision-making, arguing own position, etc.;
- the interdisciplinary teaching module - a constructive interdisciplinary project, an organized form of interaction of the humanities, scientific, professionally relevant disciplines to understand, study and manage the hypercomplex systems phenomena: environmental problems, globalization, crisis management, social engineering, artificial intelligence problem, the integration of psychology and medicine, space exploration and others. In liberal disciplines the study of the interstate conflicts is an interdisciplinary project of proving the hypothesis version and its causes. The interdisciplinary teaching module in liberal education is designed to teach within organizational and methodological structure of academic disciplines as a bridge between the separated subjects, as a route in a complex landscape of disciplinary discourses if its purpose is research and descriptive activities. But the main purpose of the interdisciplinarity is communication or communication self-organization. Hence there is the introduction of interdisciplinary methodology, transdisciplinary norms, values, invariants and universals into the scientific worldview (Budanov, 2013).

2.2 The semantic content of interdisciplinarity

The researchers in the field of synergy (Budanov, 2013) have described five types of interdisciplinary strategies and the definition of "interdisciplinarity" in accordance with these five types:

- the interdisciplinarity as harmonization of concepts related to the related disciplines. It is expected to construct the common phenomenological framework for the related disciplines, where every discipline uses its thesaurus. An example is the interdisciplinary courses of physical chemistry, biochemistry, sociology and psychology;
- the interdisciplinarity as transcoordination of the concepts of the disciplines that are not closely related basing on the relations of the general scientific, invariant, universal methods of system analysis and synergy. This type of interdisciplinarity is used within a variety of disciplines;
- the interdisciplinarity as a heuristic hypothesis is an analogy that shifts the construction of one discipline to another without sufficient justification at first. The incompleteness and creativity of such hypothetical shifts calls for either reasoning within this discipline or revising the grounds for the shift. For example, the pilot-waves in quantum theory being introduced to explain the phenomena of wave-corpuscle duality have not been adapted to it, but the random waves are generally recognized in modern science. They have unfixed all established notions of a modern human about quantum ontology;
- the interdisciplinarity as a constructive interdisciplinary project, organized form of the interaction of many disciplines to understand, study and manage the phenomena of hypercomplex systems. Today it's environmental problems, global studies, crisis management, social engineering, artificial intelligence problem, the integration of psychology and medicine, space exploration, etc. ;
- the interdisciplinarity as a communication network or communication self-organization. On the basis of

communication network they introduce the interdisciplinary methodology, transdisciplinary norms and values, the invariants and universals of the scientific worldview, develop synergy and system analysis, fashion and gossip in society.

The research has shown that the identified definitions of interdisciplinarity according to their semantic content correspond to the modern trends in higher educational process transformations and confirm their importance for the implementation of the synergetic approach in liberal education.

2.3 The pedagogical conditions of designing and implementing the interdisciplinary teaching modules in students' liberal education

- At the level of content - an organized form of interaction between the humanities, harmonization of concepts, self-organization of communication, heuristic analogy hypothesis that transfers the design of one discipline to another basing on the principle of self-organization;
- At the procedural level - the modification of interaction between the teacher and students, expanding partnerships, cooperation and mutual assistance;
- At the level of teaching aids - the interactive and design technologies;
- At the level of educational result - the students readiness to self-organization and creative activity;
- At the level of conditions - the collective creative environment in liberal education generating and supporting creative individual behavior, initiating its self-actualization;
- At the level of liberal education proficiency - availability and depth of knowledge, knowledge competence; maintenance and development of the cultural requirements; the system of axiological orientations and social norms being the norms of various fields of activity; ideals; choice of liberal alternatives; cultural and ethno-cultural identity; degree of involvement into learning and cognitive, social and professional activities.

3. Results

3.1 The interdisciplinary teaching module as a didactic construct.

This construct is founded on the guiding principles of design and problem-based developmental education enriched with the ideas of synergistic approach, self-organization and self-transformation in liberal education. Every module provides a detailed description of the activity-related, didactic purposes confirmed by the materials content being studied and the specific diagnostic and design tasks. The content of the educational material is a complete unit of educational material supplemented with methodological instructions, innovative knowledge control system allowing you to quickly adjust the teaching process. The goal - attractor of the educational process is focused on the formation of students' readiness for self-transformation, self-organization and self-development.

3.2 The structure of the requirements for the design and implementation of the interdisciplinary teaching module in students' liberal education:

- The presence of a problem significant for the research and creative activities, requiring the integrated knowledge, exploratory search for the solution (for example, study of the problem of personal immunity in different regions of the world, the creation of a series of reports from around the globe on the issue of intercultural communication);
- The hypothetical, theoretical, cognitive relevance of the expected results (for example, a report to the appropriate services about the level of the society general culture, about the factors affecting the state of culture, the trends in the development of this problem, a joint newspaper issuing according to specific problems, an Almanac with the play-by-play reports; an international draft law on protection of the cultural monuments, historic events in different regions; a video showing the problem and the ways of its solution etc);
- The independent (individual, pair and group) activity of the students;
- Phasing of the content part of the interdisciplinary teaching modules (with indication of the intermediate results);
- The use of research methods that involve a sequence of actions:
- The determination of the problem and the research tasks arising from it while implementing the joint method of "brainstorming" and design technologies;

- Hypothesizing and its solution;
- The discussion of the research methods (the analysis of information, facts, statistical and experimental methods, observation etc.);
- The discussion of the ways to formalize results (presentation, role play, video, report and others.);
- The collection, systematization and analysis of the data obtained;
- Summarizing, formalizing of the results and their presentation;
- The conclusions, bringing up new research problems;

3.3 The Methodological materials to help the students

- At the heart of each module there is a problem significant for the participants. No problem - no activity.
- Before starting to work on the module project try to answer the following questions:
- Why is participation in this activity important for me? Why are we doing this project?
- What do I need to do to implement the plan? How exactly can we do it? What should we start with? What should happen in the end?
- The stages of designing an interdisciplinary module are held according to the scenarios of design techniques:
  1. Immersion in the problem. Problem formulation. Goal-setting and tasks.
  2. The organization of the activities. Organization of the group work, distribution of the roles for every participant in the group. Planning of joint and individual activities to solve the problem. Identification of the possible forms of the module presentation.
  3. Project activity: active students' self-organization activities. Teachers counseling. Formalizing the obtained results.

3.4 The presentation of the results.

A presentation is a visual representation of what was the objective and what has been achieved in the joint resolution of the problem. While making a presentation one must clearly and vividly show the result of the students' creative activity as well as summarize the process, the difficulties arisen, the ways they were solved. At this stage, the students summarize the urgency of the issue, tasks and objectives, draw conclusions and reasonably argue for their opinion. They represent a module project, take into account the alternative views of others.

Types of presentations:

1. Oral report (it is possible to support the oral report with visual aids).
2. Theatrical performance.
3. Video.
4. Electronic media presentations (website, computers, etc.).
5. Conferences.

3.5 The registration of the results of the module implementation

At the final stage the students can present either an abstract or presentation in Microsoft Power Point. For the abstract it is advisable to include no more than 10 pages of A4, 14 Times New Roman font line spacing 1. 0, and for the presentation of no more than 12 slides.

The teacher shows a sample of the title page. The cover sheet is followed by the table of contents. The introduction should contain a justification of theoretical and pragmatic significance of the work, its relevance, provide an overview of the literature, define the problem, formulate the objectives and tasks necessary to implement the module. The central section reveals the contents of the activities, characteristics of the phenomenon or process, analyzes the key concepts. Relying on the studied materials the students should independently carry out a comprehensive research, systematize and interpret information. In the conclusion, the students give brief statements of the results obtained in the form of compressed, logically completed characteristics, analyze the data, underline the disputable questions and outline the research directions for the future.

3.6 The materials for self-study

The recommended literature is compulsory, optional, internet resources, periodicals.

4. Discussions

The productivity of implementation of the interdisciplinary teaching modules in liberal education of the students as a practical mechanism of implementing the synergetic approach into educational practice of higher school is confirmed by the results of experimental use of the modules in the course of Fundamentals of Philosophy (the philosophical culture of the specialist's personality), Pedagogy (the methodological culture of the teacher), in National history (Cultural Identity of the personality of a modern specialist), in Literature (cultural and liberal universals in the works of the XXth century writers). The criteria for the dynamics extent of the synergetic values of personal self-organization in the process of studying the interdisciplinary modules are supported by cognitive performance (logically expressed knowledge - 75% of respondents), the formation of critical thinking (emotional component) - 53%; eagerness to continuous self-improvement and self-transformation (behavioral aspect) - 76%; formation of professional competence (social and professional component) - 78%. The initial level of the studied factors ranged from 35 - 39%.

5. Conclusion

The research results of the synergetic approach to liberal education in higher school shows that the humanities as well as science-based, technical education receive new milestones to identify the underlying, essential foundations and connections between the various processes of the world, their combining into a single coherent structure. A strategic decision in this direction is including the cycles of academic courses in all vocational curricula, determining the constituent components of their basic concepts and categories in terms of interdisciplinary communication. The productivity and quality of the unified methodology of liberal education (language, terms, symbols) in modern conditions is determined exclusively by the ideas of synergetic approach, where the interdisciplinary modules act as the practical mechanism of implementation.

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Formation of the Education Subjects' Technological Culture Based on the Ethnoaesthetic Values

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Abstract

The relevance of the research problem is due to the definition of the leading idea of formation of students' technological culture in the context of the regional component. The article is aimed at revealing the content of this process on the basis of ethnoaesthetic values. The research was based on a set of such mutually reinforcing methods as theoretical, empirical. The main content of the article focuses on the conceptual rationale for ethnoaesthetization of educational space as a substantial basis for forming high students' philosophical worldview through the development of the archaic technologies for materials processing craft as the basis for studying the industrial, modern, high technology, and house culture, and the motive of their acquisition of professional competencies in the institutions of primary, secondary, higher professional education. The results of the research suggest about the importance of ethnoaesthetic values in the formation of motivational, cognitive, activity components of technological culture within the technology education of students in a multicultural region.

Keywords: *ethnoaesthetic values, formation of a technological culture, ethnoaesthetic didactics*

1. Introduction

1.1 The urgency of the problem

The existing condition of spiritual instability in the society needs the search for innovations in technological education, directing the attention of scholars to solving the problem of socialization of the process of forming students' technological culture on the basis of ethnoaesthetic values. The social targeting of this concept on the synthesis of scientific and ethnic values is concentrating, primarily, on disclosure of positive integration processes of updating the high school students' technological education, contributing to the development of industriousness, technological, spiritual knowledge, skills, ethnoaesthetic consciousness, a thrifty approach to the matter, creative, project-related thinking, self-reliance, initiative, entrepreneurial attitude, professional mobility, et cetera.

1.2 The importance of the research problem

Pedagogical analysis of the system status of high school students' modern technological education has aggravated the problem of finding novelties, designing new developments in the process of forming a technological culture in the framework of the regional components. The problem of designing innovations on the aesthetic values of ethnic culture in the indicated process shall be resolved with reference to the integrability of the general provisions of technology education didactics and the ethnoaesthetic didactics within the local, regional mental peculiarities of preparing young

people for the working life. Each region differs by ethnoaesthetic specificity of a traditional pedagogical culture; scientifically substantiated in the form of ethnopedagogy (Kharitonov, 2004). Its scientific and pedagogical framework includes elements of ethnoaesthetic values. At the same time the aesthetic values of ethnic pedagogical culture act as didactic tools for forming the education subjects' traditional industriousness and as the content of the work training, national rules of labor education, methods and forms of initiation to the work; the nature and means of aesthetic education in terms of the younger generation beauty ideal.

To ensure the scientifically-based ethno-pedagogical support of the students' technological culture formation process on the basis of the ethnoaesthetic pedagogical components a system approach is required for identifying the values of motivating learning of the subject "Technology", that creates at the stage of the pre-core training (8-9 grades), the core training (10-11 grades), the conditions of independent search activation, and of the future profession selection.

Aesthetic values of the nations, including the Chuvash, scientifically-substantiated in the form of ethnoaesthetics as a phenomenon of the universal human culture, are an indicator to determine the degree of spirituality of the technological culture of not only an individual student, but also of the society, the state as a whole. Ethnoaesthetic values, in conjunction with other traditions, which have been contributing to the development of industriousness for centuries, act as a didactic basis of ensuring the procedural side of researching the system, axiological, person-activity, ethnoaesthetic approaches by way of pedagogical tools. As the theoretic-methodological basis of the conceptual substantiation of the aesthetic life category like the "code" (Kagan, 1998) in the formation of the education subjects' technological culture on the basis of ethnoaesthetics within the Chuvash region, appears to be the historical and socio-cultural analysis of such types of universal culture as mythological, cosmological, anthropological, technological.

1.3 Ethnoaesthetic values of the Chuvash region in preparation for work life

The picture of the ancient world of objects seems to be the starting point for designing the pedagogical innovation theory, referring to the initial values of the life activities according to the principle of ethnoaesthetic didactics "A smart man learns from people and teaches the people". Following his logic, the research efforts of students are directed to the identification of the ethnoaesthetics origins in the evolution of technologies as examples of the culture formation in upbringing ethnic groups not from the writing period, but from *the pre-writing pedagogy*.

In identifying the origins of ethnoaesthetic heritage of educative concepts in primitive society as a part of the technological culture, a cut of local archaeological monuments is carried out, of the Chuvash Volga region "going deep to 60-40 thousand years." The upbringing picture has been considered in ethno-pedagogical interpretation of *the mythological culture* since the epochs of the Upper Paleolithic, the Mesolithic (XII-V thousand years B.C.), the Neolithic (VI-III thousand years B.C.), the Bronze Age (end of the III-II millennium B.C.): Fatyanovo, Balanovo, Gorodets, Srubna, Abashevo cultures − at the places of studying mounds; the Iron Age (the beginning of the first millennium B.C.); the cultures of the Volga Bulgars (IX XIII century); *the Cosmologic culture* (XV − the first half of XVIII centuries); *the anthropologic* ("foreign" schools, "workshop of humanity" of the XVIII century), *the technological cultures* (XVIII – the beginning of XX centuries) − archival materials about "outreach activities of the Simbirsk County", the Simbirsk Chuvash teachers' school (Kharitonov, 2006), Varaksarskaya Chuvash female labor community. The main purpose of exploring the historical values of ethnoaesthetics – is to teach high school students to feel the link of times between the past, the present and the future, to carry out the dialogue of cultures, because no culture is self-sufficient.

The general principle of conceptual substantiation of the dialogue of cultures, that is, the interchange with the aesthetic values of ethnic culture in the formation of students' technological culture, comes forth the Chuvash folk wisdom "*If you look back on your way, there will be new ideas*". The scientific provisions of the dialogue of cultures are the theories about the formation of the subjects' continuing education "natural-scientific worldview" (Khotuntsev, 2002), the technological worldview, about the ethnic worldview, the ethnic in the field of aesthetics, the ideas of "ethno-pedagogical pansophy" (Volkov, 2009), the culture of senses.

1.4 Status of this problem

The concept of creating a technological culture among students at the pedagogical component of ethnoaesthetics is modeled by ethno-social *ideas* based on the human-oriented position, contributing to the development of "mind, heart and hand". The system-activity ethnoaesthetic approach is based − *on the theoretical provisions* of "the Concept of creating a technological culture of the youth in general educational and culturally congruent school of Russia", "the Concept of national educational policy of the Russian Federation", "the Concept of profile education at the senior level of general education", "the Ethno-pedagogical concept", "the Concept of ethno-cultural education in the Russian Federation", "the

Development of Self-conception and upbringing", "the Concept of methodical system of training a technology and entrepreneurship teacher for the aesthetic upbringing of schoolchildren" and others; − on the experience of *the systemic ethno-pedagogization* of holistic educational/upbringing process in the Chuvash-German gymnasium of Truckee village, Yadrinskaya national gymnasium, schools of Leninsky district of Cheboksary, Yakutsk national gymnasium, and others.

1.5 The hypothesis of the research

The analysis of the pedagogical practice theory within the schoolchildren's technological culture formation, the ethno-pedagogization of the teaching/upbringing experience of educational institutions of not only in the Chuvash Republic, but also in other regions of Russia, has shown that the problems associated with the conceptual rationale for creating the technological culture of the education subjects, on the basis of ethno-aesthetic values, to date has been insufficiently studied (Nikitin, 2011). Hence, the hypothesis of this research is based on the assumption that the formation of the continuous education subjects' technological culture on the basis of the ethnoaesthetic values will be effective if: the theoretical and methodological provisions of the ethnoaesthetic approach are substantiated, which integrate the aesthetic, ethno-pedagogical, anthropological, system, axiological, person-focused, activity-based, competence-based approaches; the historical and socio-cultural analysis of universal cultures is carried out, which are marked on the territory of the Chuvash Republic; pansophism of the domestic and foreign philosophical-pedagogic cultures, which will identify the ethnoaesthetics basics, to justify it as a pedagogical component, to determine the methodological guide of culturocentric improvement of the modern system of the education subjects' technological culture formation on the basis of the ethnoaesthetic values; the concept has been developed on the education subjects' technological culture formation in the context of the pedagogical component of ethnoaesthetics, able to focus the educational paths on personality socialization, corresponding to the spiritual needs of the society, the labor market; the substantive provisions of the ethnoaesthetic didactics have been identified, based on a retrospective analysis of ethno-pedagogical, ethnographic, archaeological, archival, field materials, which will allow to specify the structure and criteria of the technological culture development; a comprehensive model of creating a technological culture of the subjects of continuing education has been developed, based on the ethnoaesthetic values, developed on a multiparadigm approach; a procedure for designing the content, the pedagogical conditions has been developed, and the organizational-pedagogical mechanism to ensure the formation of a technological culture among students has been revealed on the basis of ethnoaesthetics.

2. Materials and Methods

2.1 Objectives of the study.

In the research process a solution to such problems was provided as: 1) development and substantiation of the theoretical and methodological foundations of the ethnoaesthetic approach, facilitating the efficient formation of the education subjects' technological culture ; 2) implementation of the historical and socio-cultural analysis of universal cultures, marked on the territory of the Chuvash Republic, the phenomenon of pansophism of domestic and foreign philosophical-pedagogical cultures with justification of ethnoaesthetics as a pedagogical component; 3) identification of the methodological guide of culturocentric improvement of the existing system of creating students' technological culture in the system of modern education; 4) implementation of a retrospective analysis of ethno-pedagogical, ethnographic, archaeological, archival, field materials to develop basic provisions of ethnoaesthetic didactics; 5) development of the basic provisions of the education subjects' technological culture formation on the basis of ethnoaesthetic values; 6) substantiation of an integrated model of creating a technological culture of the education subjects on the basis of ethnoaesthetics, developed on a multiparadigm approach; 7) development of the procedure for designing the content, pedagogical conditions, and disclosure of the organizational and pedagogical mechanism for ensuring the formation of a technological culture among students on the basis of ethnoaesthetics in the education system; 8) identification of criteria for the maturity level of the education subjects' technological culture on the basis of the ethnoaesthetic values.

2.2 Theoretical and empirical methods

To test the hypothesis the research was based on a complex of mutually reinforcing methods: 1) theoretical − study and analysis of the theoretical and applied research in the field of technological culture, pedagogics, and ethno-pedagogy; comparative analysis of philosophical, psychological-pedagogical, methodological, culturological, fine art, ethnographic studies, archaeological, ethnoaesthetic materials; systemic-functional analysis of the pedagogical activity of educational

institutions; scientific synthesis of the actual materials; modeling and abstraction, hindsight analysis, and others; 2) empirical − investigation, collection, systemization of the archive, field materials, monuments of material and spiritual culture; compilation of the many years' teaching experience of the author on the formation of the technology-based culture through ethnoaesthetics in the system of national education "High school - University – Further Vocational Education"; pedagogical observation, questioning, studying the process under investigation; interviewing students, teachers, administration, parents to identify their attitude to the problem of the research; ascertaining and formative experiment, statistical processing of the results.

2.3 Base of the research

The experimental base of the research were the municipal educational establishments of comprehensive high schools № 2 in Shumerlya, № 22, № 28, № 49, № 62 in Cheboksary, ethno-pedagogical grades of Kugesskaya comprehensive high school №1 of Cheboksary region in the Chuvash Republic.

2.4 The stages of the research

The research was conducted in four interrelated stages.

The first stage − *the search-theoretical* − was aimed at identifying the problematic field of the research and the degree of its elaboration in pedagogical science; accumulation and substantiation of the methodological framework of the theoretical and empirical research material, for which purpose the data from the archival, field, scientific sources have been collected. The result was the identification of the general regulations, which helped to develop a line of ethnoaesthetics basics, outline the vector for using its didactic components in practice of creating the education subjects' technological culture.

The second stage – *the structurally-diagnostic* − included the familiarization of the educational institutions' personnel with the terms of implementing this process within the innovative educational activity. The basis of the research was the definition of the pedagogical design aspects, for which purpose a hindsight analysis was conducted on the experience of domestic and foreign schools according to our subject area, a comparative analysis, adjustment of curricula, programs, material resources of the training workshops. According to the research results, the conceptual and categorical, as well as methodological framework has been systematized; the conceptual provisions of creating the technological culture of the subjects of education through ethnoaesthetics have been identified, its criteria have been developed; the regulations for implementing the holistic educational process in the system of national education have been elaborated; the ascertaining experiment was carried out.

The third stage – *experimental-prognostic.* To ensure it, the adjustment, the substantiation of the basic provisions of the concept of creating a technological culture of the learning youth continued in the context of the pedagogical component of ethnoaesthetics and their publication in mass circulation; according to the stated problem a model was being developed as an integrative mechanism for implementing the components of the ethnoaesthetic didactics and the didactics of technological education in the general education system; its effectiveness was being identified. Within the framework of the system the formative experiment was conducted. The procedural side was supported by a group of creatively working teachers, whose high-quality interaction was provided through the informational training seminars, research-to-practice conferences and technology competitions of different levels. According to the preliminary results of the experimental work, the recommended practices were developed, the training manuals were created.

The fourth stage – *analytical-generalizing.* At this stage the re-verification of the developed model's efficiency was carried out, the pedagogical conditions of executing the effectiveness of creating the technological culture of the students; the effect of personality socialization formation was identified. The results were tested at the international, Russian-wide, regional and inter-university conferences; were summarized in the monographs, textbooks, publications in leading Russian and inter-regional scientific-educational editions; the scientific and literary report of the research materials was completed.

2.5 Evaluation criteria

Evaluation of the ethnoaesthetic values effectiveness in shaping the education subjects' technological culture was performed according to the following components: *emotionally-evaluative* (ethnoaesthetic consciousness), *cognitive* (technological worldview, knowledge) *and activity* (technological abilities, skills, thinking, aesthetics (design), ethics, diligence. The criteria were: a high school student's emotional sphere development level − as an indicator of the degree

of development, encouraging (motivating) to activity; the level of cognitive − as an indicator of cognitive development degree; the level of activity − as an indicator of the practical development degree, "which is expressed in the ability to translate theoretical knowledge into practice" (Kharitonov, 1999).

The emotionally-evaluative component suggested spiritual development of the high school students: the ability to aesthetically experience, sensually evaluate products of folk art, crafts, women's handicrafts, works of art (emotions, feelings, interests, needs) enabling to awaken aesthetic feelings of motivation to work. In *the cognitive* component we have included technological, ethnoaesthetic knowledge, skills obtained in the classes of technology, native literature, visual arts (fine arts), the cultures of the native land (CNL), and music, in the pre-core, and core training. In *the activity* – it is the ability to apply the synthesis of integrative knowledge in practice during the project, arts and crafts activities, to realize creative propensities, a thrifty approach, to do good deeds.

2.6 The course and description of the experiment

In the course of the ascertaining experiment the diagnostics of the level of development of a technological culture of the students was carried out. With this objective, a testing was conducted, practical work was accomplished. To define the degree of the technological culture of the subjects of education, we have identified three levels: high (3 b.), average (2 b.), low (1 b.). The analysis of the testing results showed that the main part of the students in both groups had approximately the same results: only 5-9 correct answers for each section of the "Technology" program. Comparing the levels by the components of technological culture, you can see that the performance abilities of students to use *technological knowledge and skills in practice* were low.

The differences in indicators between the technological knowledge and skills is explained on the one hand, by the desire of students to perform practical work faster and, on the other hand, − by low industriousness, ethnoaesthetic consciousness, poor motivation of cognitive interest in the activities.

The formative stage of the experiment was based on the integrative course “Fundamentals of technological culture: ethnoaesthetic aspect”, consisting of the units: "Material culture", "Spiritual culture", "Folk wisdom". The students of the control groups traditionally worked under the program “Technology. Labor training”, and in the experimental groups the content of the regional component on the ethnoaesthetic values was realized according to the above indicated units.

3. Results

3.1 The ethnic component of the training/upbringing content

For full implementation of the ethnic component of the integrative course “Fundamentals of the technological culture: ethnoaesthetic aspect” in the holistic process of creating a technological culture of the subjects of education an integrative program “Ethnoaesthetics: the household book” was developed and implemented, consisting of the following units-modules: “Native literature”, “Culture of the native land”, “Fine art”, “Music”, “Technology”. For the effective implementation of the experimental work a preparatory work was carried out with technology, native literature, art, and music teachers. They were required to take a creative approach to the use of spiritual, technological content of the national culture, its ethnoaesthetic values in the educational process.

The developed program is as close as possible to the goal of didactics of technology education for schoolchildren, to solving its educational, upbringing, developmental tasks. The integrative course and the program were reviewed by the scientific-methodological Council of the Ministry of education and youth policy of the Chuvash Republic and are permitted for use in educational institutions having the state accreditation and implementing the educational programs.

The integrative program “Ethnoaesthetics: the household book" is intended to organize and conduct classes with 5-11 grade students. The course includes an introduction of the students to the ethnoaesthetics values of mythological, cosmological, anthropological, technological types of universal culture. The experimental work to validate the effectiveness of the conceptual conditions of using the basics of ethnoaesthetics during the formation of the technological culture was carried out differentially, taking into account sex, age peculiarities of the subjects of continuing education of mid-level, pre-core, and core training. “The technological culture formation. The ethnoaesthetic labor traditions: “Kyl huçi” (the Host), (the Hostess)” modules were integrated into the content of the sections of the program "Technology" where *the boys* were additionally mastering the technology of clay modeling, art processing of straw, birch bark, basket weaving, molding, house carving, wood turning, designing of musical instruments, modeling architectural constructions, and *the girls* – technologies of national cookery, embroidery, knitting, designing and modeling clothes.

Synthesis of the artistically-figurative, ethnographic knowledge, gained in the classroom for the above disciplines,

comes forth as ethnoaesthetic basis for studying the archaic, industrial, modern technologies, organizing the project method for studying in technology classes, in pre-vocational training within the framework of the pre-profile and profile learning, in extracurricular activities.

3.2 Extra-curricular work of the high school students

According to the concept of creating a technological culture of the subjects of education on the basis of ethnoaesthetic values an important condition for implementing this process was the involvement of students in extracurricular activities (Nikitin, 2008). Extra-curricular work of each student was reasonably organized both for rest and for self-realization in an interesting matter. Among the traditional forms optional classes were used: discussions, contests, fairs, competitions on technology. Taking into account the cognitive interest of the students, the objects of material and spiritual culture were becoming the objects of researching the ethnoaesthetic values.

The significance of the students' addressing to extracurricular activities is intensified by the fact that in recent years some youth informal groups with chauvinistic, criminal tendencies in the form of "skinhead" movement intensified their activities. In order to distract children from such informal groupings, particular attention was paid to organizing various children's unions, including labor ones.

In the issue of our research, *labor unions* – are such a form of extracurricular applied activity, where pedagogical problems of creating a technological culture among students using tools of ethnoaesthetic didactics are solved. The function of labor unions is to deepen knowledge in the field of archaic craft technologies, folk crafts, decorative and applied arts, design; self-confidence in their abilities, serving creative interests, inclusion in creative activity. The main activity areas of the labor unions of students are: academic research (activity clubs, scientific societies); culturological (on history, culture, art, philosophy, ethnography issues); artistically-aesthetic (decorative and applied arts).

Work in the traditions of ethnoaesthetics has been viewed as a means of traditional culture of upbringing, orienting children toward the labor lifestyle. This component occupies a fundamental place in the technological culture formation. Therefore, taking into account the principles of the ethnoaesthetic didactics, the following pedagogical conditions are set forth:

- to learn to work, instead of playing in work;
- interesting work is in its benefit, usefulness;
- to work, in order that the results of the labor should please both the student and the consumer;
- rationally organized labor − is a means of self-identification of propensities and abilities;
- the aesthetics of labor – is in expediency, efficiency, in the sense of internal self-satisfaction.

Taking into account the conceptual positions of forming the students' technological culture in the context of the pedagogical components of ethnoaesthetics, to familiarize the students with the basics of small business development in real practice, at comprehensive high school № 49 of Cheboksary in 2000 a school company "Naslediye (Heritage)" was organized. *The school company* − is an economic and business laboratory, which introduces students to many theoretical laws and economic concepts, such as: demand, supply, variable and fixed costs, performance, et cetera.

Within the school company "Heritage", for complex solutions to issues on the students' technological culture formation, the mini-stock production associations were organized in the experimental grades. Students of 7-8 grades were joined into a company called "Nasledyata (Little Inheritors)"; students of 9 "D" grade created a company "XXI century"; students of 9 "F" grade organized a company "Masterok (A Little Craftsman)"; seniors of 11 "A" grade created a school enterprise "Web" for providing computer services, 11 "B" grade − "the Tree" company for producing children's shovels, 11 "C" grade − a "Hand" company for producing frames, 11 "D" grade − "the Phoenix" company for producing candlesticks. All of these "mini-companies have developed business plans for manufacturing, and production of the folk crafts" (Nikitin, 2012).

The formation of the technological culture of the shareholders in a company was performed according to the traditions of ethnoaesthetics, where as the principle advocated the saying "*Above all there is the profit, and the honor – is above the profit*". The efficiency of the ethnoaesthetics basics in shaping the technological culture of the shareholders in a school company "Heritage" has been tested in various competitions, festivals, fairs, gatherings, and the academic "Olympiad" competitions in technology.

3.3 The progress and results of the experiment

The dynamics of the education subjects' technological culture level formation was determined by means of tests, practical work, and creative training projects. The level indicators were: high (50 b. and higher), medium (45-49 b.), low (up to 44

b.). The comparative characteristics of the levels showed that at the initial (i.) stage the students of the control (CG) and experimental groups (EG) have small differences in the levels of the technological culture components.

To characterize the results of the research the average values of the levels were deduced according to the emotionally-evaluative (motivational): high level in CG (i.) was equal to − 10, 24 %, final (f.). − 11,88 %, EG i. − 11.79 %, f. −19,11 %; average: CG i. − 37,71 %, f. − 41,39 %, EG i. − 36,18 %, f. − 67,07 %; low: CG i. − 52,05%, f. − 46,72, EG i. − 52,03 %, f. −13,82 %; the cognitive: high: in CG i. − 10,45 %, f. −14,14 %, EG i. − 9,35 %, f. − 31,71 %; average: CG i. − 56,56 %, f. − 58,60, EG i. − 56,51 %, f. − 53,25 %; low: CG i. − 32,98 %, f. − 27,25, EG i. − 34,14 %, f. − 15,04 %; the activity -based: high: in CG i. − 11.96 % , f. − 15,05, EG i. − 12,35 %, f. − 27,37 %; average: CG i. − 48,44 %, f. − 53,38, EG i. − 48,94 %, f. − 55,53 %; low: CG i. − 39,58 %, f. − 31,55, EG i. − 38,69 %, f. − 16,09 % components.

It should be noted that in the experimental group at the final stage there increased the number of students, who considered the ethnoaesthetic values as an essential element, encouraging towards the decorative and applied, informative, practical, project, creative, independent activity, the virtue, as important components of forming a technological culture (see fig. 1).

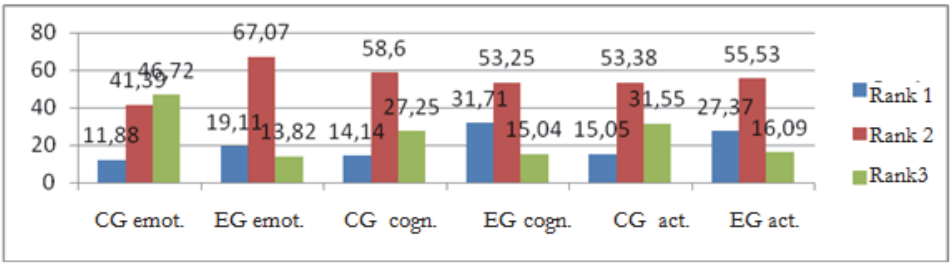

Fig.1. The ratios of the levels of the schoolchildren's technological culture formation based on the ethnoaesthetic values in the CG and EG. The level ranks are: 1 − high, 2 − average, 3 − low

The experimental results show the effectiveness of using the ethnoaesthetic values, which can motivate to form the education subjects' technological culture components.

4. Discussions

The concepts of technological (Atutov, 2000), culturological (Krayewski, 2008), ethnocultural (Shpikalova, 2006) education and national educational policy of the Russian Federation became fundamental for the problem of our research. The general theoretical position on the education subjects' technological culture formation is defined relying on the proceedings of (Matyash, 2012), (Pavlova, 2000). The general theoretical contribution to solving the issues on the regional approach to the problem of creating a technological culture has been made by the scholars: (Gilvanov, 2004), (Tigrov, 2000), and others.

This aspect of the conceptual rationale for creating a technological culture of the education subjects based on the ethnoaesthetic values was not considered in previous investigations.

5. Conclusion

The proposed conceptual provisions in the article allow highlighting the ethno-social ideas based on the unity of *technological* (hands), *spiritual* (heart), and *intellectual* (mind) components. Covering such subjects as a personality, the society, the educational sphere, the ideas are distributed in the following directions: *the first idea* (education and personality) − humanization of education on the basis of ethnoaesthetics as a transition from "progressivism" to "child-centrism", to the cult of the students, the cult of "work"; *the second idea* (education and society) – mutual integration of education into the community and vice versa as the ethnic spiritual and technological components unity in shaping the culture of a person's feelings; *the third idea* – is a continuous, modular education according to the ethnoaesthetic didactics.

6. Recommendations

The article contents are valuable for technology, native land culture, native language, and music teachers, the instructors of supplementary education, creatively working educators, heads of educational institutions. Of value is the disclosure of the ethnoaesthetic elements on the scientific basis as the life content, the pedagogical tools of socializing the education subjects' technological culture formation process.

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Specific Character of Formation of Competitive Development Strategies in the Information - Communication Services Market

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Abstract

In the context of growing globalization processes and the entry of Russia into the international information space the problems of competitiveness of domestic operators in the information - communication services market are actualizing. On the basis of analysis and use of the "matrix of strategic actions of a service company" the main specific organizational and managerial features of construction and implementation of competitive development strategies for the information - communication services market participants are considered, the comparative characteristics of the development of competitive strategies in the market of information and communication services by traditional methods of strategic planning are considered, the benefits of "divisional" structures and their specificity in the market of information and communication services are justified. This article is intended for students studying methods of marketing research in the service industries, as well as marketing specialists, operators who develop strategies of their companies growth.

Keywords: *competition, strategy, market, information and communication services, divisional structures.*

1. Introduction

One of the global trends in a modern industrial and economic environment of society is the predominance of the service sector, the so-called tertiary sector of the economy over the industrial sectors: a primary one – the extractive industries and agriculture, a secondary one – manufacturing industries. The fifth industrial is the last cycle of industrial development and is a kind of transition to a post-industrial information - service society. The development of a modern economy is characterized by a rapid growth of the service sector compared with its other sectors (Schumpeter, 1982).

This manifests itself in the rapidly growing share of services in the gross domestic product of the leading countries of the world that has reached 70% in the United States, in other countries more than 60%, in developing countries almost close to 50%, and in Russia it is about 53% (Andreeva & Mirgorodskaya, 2004). The transformation of the service sector

in the dominant sector of the national economy for the production of gross domestic product and employment coincided with the information technology revolution, when, at the end of the XX century, in order to replace the industrial society of the extensive type the information-service society of the intensive type of development comes. The accelerated development of the service sector is also associated with an increase in the social division of labor as a result of scientific and technical progress, and on this basis, raising the material well-being and improvement of their life quality (Danilin, 2004).

In the context of the transformation stage of the national economy development the setting up and maintenance of the competitiveness has become a major concern of all business organizations in the sphere of services regardless of their size. Structural and institutional changes in global and national economies are diversified and uneven, that essentially transforms the nature of the relationship between competing business entities. It is possible to comply with the taking place changes only on the basis of growth of competitiveness of enterprise structures (enterprises, companies, firms), industries, regions and states. However, it is important to understand that competitive or non-competitive positions of specific companies and industries are always responsible for the rating of the country (Gelvanovsky, 2003).

All this requires the formation of an adequate development strategy on one of the largest segments of the service market, which is the market of information -communication services, acting as a strategically important sector of the national economy, ensuring the development and strengthening of the state community of people, their livelihoods and implementation of the major social rights of civil society (Andreeva & Mirgorodskaya, 2004).

The urgency of this problem increases significantly due to the increasing dependence of the main parameters of the socio-economic development of regions and the level of information - communication services market development (Courbiev & Kiselev, 2010).

2. Methodological Framework

2.1 The objectives of the research

The objectives of the study is to develop the theoretical foundations and practical recommendations for the establishment and effective functioning of a competitive strategy in the regional market of information - communication services, interaction of this market subjects, as well as methods of state regulation of the process of its development, including the study of specific features of the competitive environment formation in the regional market of information-communication services, the specific characteristics of the institutional forms of territorial associations of the subjects of the information - communication services regional market.

2.2 Theoretical and methodological framework

Theoretical and methodological basis of research are the works of domestic and foreign scholars in the field of regional markets theory, as well as the specific features of the individual local markets functioning.

In the process of research there are used dialectical and system analysis methods, methods of abstraction and comparison, statistical surveys, economic and mathematical methods in the calculation of averages, groupings of economic indicators, modeling methods and expert evaluation.

3. Results

There are distinguished specific features of the institutional forms of a regional service market unification that are aimed at the use of quality factors of a corporate strategy and the level of information - communication technologies development, a high degree of diversification of information - communication services, orientation on customers of the regional market certain segments.

The study of the largest telecom operators in the Volga Federal District revealed a set of interrelated organizational and management problems damping their further development. The most important problems are the outdated management and organizational structure, the absence of an analytical professional approach to studying the condition of information and communication service market segment, the lack of competitive strategy of development with certain defined objectives, priorities and deadlines for achieving them. All this is greatly urgent regarding the problems of formation of the competitive development strategies in the information - communication services market.

Organizational and managerial features of functioning of modern business forms in the field of information - communication services are due to the specifics of certain activities that have an ambiguous effect on the processes of

management of business structures. It is necessary to take into account the specific features of the information - communication services market, which can be described as follows.

Firstly, this market segment is characterized by the massive introduction of modern high-tech means of information communications, mainly multiservice orientation , which entails a radical reconstruction of networks and the rapid drop in economic efficiency and competitiveness of traditional networks used to transmit information of only one type (Rokotyan, 2006; Kotilko & Sanin, 2003).

Secondly, a sharp intensification of competition in the most dynamic segments of the market, such as mobile telephony, Internet and services for corporate users, has led to an increase of consumers' market power and their ever-increasing pressure on prices of information - communication services operators. As the annual reports data of the leading domestic operators of information - communication services show that the profitability of basic services in the segments of fixed-line market has a steady downward trend that forces operators to look for new ways to preserve profitability (Efanov, 2006). This trend is proved by the stop of classic telephony market growth in developed countries against the high penetration of mobile networks and the rapid growth in the number of broadband connections.

Thirdly, a unified business model of providing information -communication services, including the creation of the operator's own network, its operation and providing services to consumers on its basis, under the influence of the above-mentioned trend is divided into two independent infrastructural and service models. In this case, the most important component of a competitive strategy in the information - communication services market becomes a marketing component, considering the service not as a technological product of information and communication services network, but as an object of sale.

Fourthly, the most important feature of the market orientation of the modern process of information - communication services sale is the deep diversification of market segments, the ability to get a variety of services in one place, using a single, so-called "operating window". This trend leads to the formation of specialized intermediary companies, which in foreign countries make up a whole category of virtual operators that do not have their own network infrastructure but having the ability to complete various combinations of services purchased at wholesale prices from the network operators and resell them in the form of packages to end-users under their own brand name. In this case, the virtual operator can add to a service package a significant amount of services organized by himself both information – communication ones and services that have nothing in common with them.

There are formed comparative characteristics of the competitive development strategies in the information - communication services market by means of traditional and strategic planning methods

Table 1. Comparative characteristics of the development of competitive strategies in the information - communication services market by means of traditional and strategic planning methods

№	The main characteristics of two types planning	
	Traditional	Strategic
1	Current, short-term, medium-term	Long-term, prospective
2	Administrative and managerial approach	System problem-oriented approach
3	It solves several current tasks	It solves the set of many interrelated current and future tasks
4	Orientation on its own resources	Orientation on their own and borrowed resources, as well as partnership relationships
5	Divisional structure	Participation in flexible organizational forms of management, including network structures
6	Hierarchical structure and management of developments	Project, matrix and combined management of developments
7	Limited involvement of staff in the developments	The high level of involvement of different staff groups in new developments
8	Performed for the top management of the company	Performed for all groups of stakeholders (staff, partners, investors, creditors, customers)
9	It does not require a high qualification	Requires the highest qualification level
10	Results are limited by a marked list of plans and activities	The results are complex, multifaceted, dynamic, mutual

The process of strategy management formation and development of companies in the information - communication services market involves as an integral part and process of the strategic planning of the industry enterprises activities. In businesses and structures in the information - communication services market has rooted a traditional planning of

activities (short- and medium-term) which virtually ignores the processes of influence the environment and market conditions, especially in the long-run period. Whereas modern conditions of functioning and development of highly integrated companies in the sector of information - communication services require a strategic approach, which has a number of advantages clearly presented in the table.

There has been adapted the matrix of competitive strategies of operators, depending on their economic situation and the potential capacity of the regional market of information - communication services. Substantial significance in determining competitive strategies of information - communication operators have their economic condition and the potential capacity of the market of information and communication services in the region. Using "the matrix of strategic actions of a service company" (Zaynasheva & Shkabarnya, 2004), we attempted to impose its conditions on the algorithm of competitive strategies development of information and communication services operators, depending on the factors listed above (see Fig. 1).

		Economic situation of a service company		
		Good	Medium	Satisfactory
The potential capacity of the service market	Large	Expansion of innovation, investments	Diversification, innovation, cost reduction	Getting into strategic partnerships
	Medium	Diversification, innovation, investments	Getting into strategic partnerships	Merger, restructuring
	Small	The search for new markets, diversification, innovation	Merger, getting into strategic partnerships	Restructuring, transformation bankruptcy

Figure 1. The matrix of competitive strategies of operators depending on their economic situation and the potential capacity of the information and communication services regional market

Strategic decisions, generated by this matrix, can be used to develop competitive strategies for further development of market participants of information - communication services in the region as a whole. A significant role in determining the potential capacity of the regional market of information - communication services belongs to the aggregation strategy, which is based on the most significant for the company socio-economic factors and features, it allows to consider this market segment as a homogeneous environment and, accordingly, to develop a system of organizational - economic and marketing activities. In most cases, the policy of aggregation leads to attempts of companies to influence the process of creating a demand for a particular segment of the information - communication services market. In other words, large companies often dictate their interests by their policies to the consumers.

The major component of aggregate resources and factors of the internal environment of modern information - communication operator is the level of management, which essentially forms its potential competitiveness. The management of information - communication operators can be considered as a qualitative resource and an essential factor of their competitiveness. If the composition, structure, quantitative and qualitative characteristics of its own and attracted resources of the operator can be adequately estimated by using absolute figures, so the criteria of management development level are only relative indicators of use of all resources types – the levels of profitability, return on assets, solvency, financial stability, share market at this segment, the degree of needs satisfaction in information - communication services. The positive dynamics of these indicators shows an increase in the competitiveness of information - communication operators in this segment of the regional market.

A characteristic feature of the modern development of highly integrated operators in the market of information - communication services is that the classical linear-functional management structures are peculiar only to some small and medium-sized enterprises. This type of management structure construction is rarely used by large and major corporations and associations prevailing in the area of information - communication services. Most of all it is peculiar to their territorial divisions and branches. For large organizations in the information - communication services market divisional approach to building organizational management structures has become dominant. The appearance and development of divisional structures is due to the sharp increase in the size of companies and the scope of their activities, complicating of technological processes and economic links, diversification of the types of work and services. It is obvious that in a changing external environment it is becoming more difficult to manage from a single center rather diverse and geographically dispersed business units. Moreover the part of the administrative functions of information - communication services and in a number of other service industries associated with a direct customer service, clearly gravitating towards decentralization.

The analysis shows that the two types of divisional structures are widely used in the sphere of service in huge

integrated companies: product and territorial (Zaynasheva & Shkabarnya., 2004; Kotilko, 2003). The product divisional structure of a large company in the field of information - communication services can be characterized by the presence of a number of divisions that specialize in certain types (groups) of information - communication services, or multidisciplinary activities and being divisions with all their inherent autonomy and responsibility. These divisions are composed of services and structures providing the production, implementation of services and a direct customer service. Of course, the composition and structure of these internal services and departments may vary, it depends on the specific types of services and forms of customer service. This type of organizational and management structure is currently used in large and medium-sized multi-service companies, such as, for example, operators and service providers in the market of information - communication services providing a wide range of services to the population, as well as a variety of business services to legal entities. Service companies, which have such a management and organizational structure, are highly competitive and able to respond adequately quickly to changes in the conditions of competition in its market segment, to customer demand fluctuations and to changing priorities in customer service.

Along with a product divisional structure the varieties of territorial divisional structure got a wide spreading in the service sector in recent years. In this considered option, a service activity in a certain area (city, district) is assumed to be controlled through appropriate territorial offices (branches) bearing the full financial, production and economic responsibility for the results of their activities.

A territorial option of the divisional structure greatly facilitates the process of a company management as it can take into account regional conditions and characteristics of geographical, natural and climatic, national and legal features, traditions, customs and daily life of local people in full scale. This management structure is particularly effective in terms of remoteness and scattered settlements; it requires a maximum approaching of services to their customers. The management in the majority of the largest operators of telecommunications, insurance companies, financial and investment funds, network companies of after-sales service of sophisticated domestic and computer equipment and others is organized by territorial divisional structure.

The main advantages of divisional structures in the information - communication services market include the following:

- the use of divisional management structures enables the company to pay as much attention to specific types of services and consumers as a small specialized company can afford it, in the result that allows to respond much more effectively to the changes taking place in this market segment and adapt to them;
- the maximum orientation of the management structure on achievement the final results of company activities consisting in production and delivery of certain services, meeting the needs of certain customers, diversification of services in this market segment;
- the complexity reduction of quantitative and qualitative parameters of the senior management problems;
- the separation of operational and strategic levels of management that allows senior management of a company to focus on strategic planning and development;
- the transfer of responsibility for the final results on the level of divisions; that allows the management to adapt most effectively to the market situation in this market segment;
- improving and raising of efficiency of management divisional structures and their heads' initiative.

4. Discussion

The problems of formation and development of local markets in the framework of the theory and practice of regional economy are adequately represented in the works of foreign and domestic scientists.

Theoretical questions and the concept of regional markets, methods of economic evaluation of regional markets, a creation of a competitive environment and a market infrastructure are considered in the works of leading foreign scientists Y. Schumpeter (1982), F. Kotler (1992) and others.

Problems of formation of competitive strategy in the services sector are considered in the works of L. Andreeva & E. Mirgorodskaya (2004), G.L. Azoev & A.P. Chelenkov (2000), M.I. Gelvanovsky (2003), E.N. Zhiltsov & V.N. Kazakov (2007), Z.G. Zaynasheva & G.V. Shkabarnya (2004), I.U. Courbiev & S.V. Kiselev (2010), Kulibanova V.V. (2002), Lifits R.A. (2001) and others.

The foundation of modern research in the field of information and communication services market development and its role in regional development was laid in the works of L.E. Varakin (2006), A.V. Danilin (2004), A.V. Efanov (2006), I.U. Courbiev & S.V. Kiselev (2010), V.V. Kotilko & I.I. Sanin (2003), S.B. Perminov (2007), A.U. Rokotyan (2006) and others.

However, despite a large number of works of Russian and foreign authors, there remains a big list of issues related

to the development of regional strategies for information - communication services market development and their impact on the socio-economic development of regions.

5. Conclusion

Formation of associations of various types on the information - communication services market and their joint activities inevitably raise questions of these alliances effectiveness assessing for the purpose of improving the competitiveness of their constituent structures in terms of synergies. In this case, in our opinion, the analysis of the effectiveness of integrated business forms should be based on a comparison of the two main final options. The first one involves an assessment of business activity of information - communication services operators outside of these associations at their full independence, and the second one involves the assessment of synergies from such association in the framework of relevant restrictions and obligations. Further these final options are compared on various indicators, but as the final integration effect should, in our opinion, serve the resulting difference between the values of the selected final indicator. Most often, to assess the cost-effectiveness indicator there used the indicator of net present value, as it is as a result of creation of new organizational business forms, resulting from integration processes, may serve as one of the possible assessments of a synergetic effect. It should always be remembered that these mentioned and traditional indicators of economic efficiency are not always adequate to the economic content of integration formations in the market of information - communication services focused on their own, sometimes narrow corporate and private-ownership, strategies of combining, livelihood and development.

It is natural that in the current conditions of market functioning and the specific of industry groups in the field of information - communication services there cannot be a unified system of indicators to measure the level of enterprise structures competitiveness. Each company within the industry peculiarities independently determines such a system, basing on their own ideas and purposes of assessment indicators. However, the formation of an assessment indicators system cannot be considered as a completely spontaneous process. In scientific and practical economic literature there is a certain set of requirements that assessment indicators of a competitiveness level must satisfy, among which the most important are the requirements of the systemacity, proportionality, complementarity, relative objectivity, possibility to express through absolute and relative terms, retrospectivness, possibility of comparison, accounting and analysis .

6. Recommendations

The obtained results allow to establish an effective system of management and the promotion of relations in the field of information - communication services in the region, to adapt the methodic of competitive strategy of market subject development in the regional market of information - communication services to the realities, to evaluate the relationship level of the socio-economic development of the region and the level of development of information - communication services regional market.

The results can be used as a basis for further scientific development of problems in the functioning of the regional market of information - communication services in the practice of all its subjects, as well as state regulatory agencies.

The results may be useful for students learning methods of marketing research in the service industries, as well as marketing specialists, operators who develop growth strategies for their companies.

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A Model of Technical University Students' Creative-Project Activities' Systemic Commitment to Their Self-Development and the Experimental Verification of Its Effectiveness

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Abstract

The urgency of the need to develop a model of the systemic commitment of creative-project activity of technical university students to their self-development is due to the fact that the reserve possibilities of this type of teaching, research and professional activities from the perspective of the systemic commitment to self-development of the students' competitiveness remain insufficiently investigated in the theory and practice of teacher education. In this regard, the article presents the main components of the model of systemic commitment of the creative-project activity of technical university students to their self-development, as well as the results for its implementation in practice of higher professional education. The presented components of the model in the article (objectives, contents, methods, learning and educational environment) are working for the ultimate goal − for self-development of professional creativity, self-development of the competitiveness of a student as a prospective specialist. The results of the article can be used by administrators and faculty members of higher education institutions.

Keywords: *creative-project activities, self-development, students, model, competitiveness.*

1. Introduction

The problem of quality control of engineering-technology education, the increase of engineering technologists' competitiveness is due to socio-economic factors, as well as to the goals of modernizing higher, including the engineering- technology, education in Russia, as the quality of engineering-technology education is ultimately determined by the competitiveness of Russian goods and technologies. It should be noted that the task of improving the efficiency of the engineering-technology education in our country has always taken a leading role (Khairullina et al., 2015; Gumerov et al., 2015).

The aim of modern politics for modernizing the education over the medium term is to ensure the competitiveness of

Russia globally. This goal is achievable, if in the coming years to ensure the optimal ratio of cost and quality in education and science (Merzon et al., 2015). For this it is necessary to implement new organizational-economic mechanisms in the education system to ensure effective use of the available resources and contribute to raise additional funds, to improve the quality of education on the basis of renovation of its structure, content and teaching technologies, to attract qualified professionals to education, to enhance its innovation potential and investment attractiveness.

However, to increase innovation in training modern graduates at institutes and universities of technology − means to increase even during academic training the quality and efficiency of their creative-project activity, to refocus this activity to continuous development and self-development of students' − the prospective engineering technologists' competitiveness.

2. Methodological Framework

2.1 Key concepts

The concept of "self-development" is revealed as a complex system quality of self-consciousness, characterizing the effectiveness of "self-processes" directed by self-consciousness of a subject in the direction of their improvement based on solutions of increasingly complex creative-project tasks and assignments.

Professional creative-project engineering-technology activity is regarded as one of the professional activity types, which in a generalized form aims to search, detect and solve creative-project engineering-technology problems and tasks on the basis of professional knowledge system, competencies and creative abilities, which are improving and self-developing in the context of this activity(Kazantsev, 2000; Bolotov & Serikov, 2003; Agapov, 2001; Masalimova & Sabirova, 20144 Shaudullina et al., 2014; Torkunova et al., 2014).

Competitiveness of a student – a prospective engineering technologist is a dynamic open system, developing on the basis of personal self-determination and self-development program and making it possible for a university graduate to effectively adapt to the world of work (Andreev, 2003; Andreev, 2005; Chuchalin & Pokholkov, 2004; Sakhieva et al., 2015).

2.2 Historical background of engineering-technology education development in Russia

The first period – is the origin of engineering. Formation of professional engineering education in Russia is associated with the era of Peter the Great, with his decrees of 1701, in which the king-the reformer decided to create schools to prepare professional personnel in a short time, "jacks of all trades." The emergence of higher technical educational institutions can be considered as the first indication of the origin of engineering activities in Russia. The second and most important indication is that in those exactly years individuals from the country's broadest layers of population were being involved in the process of technical training.

The second period, which can be called "the formation of engineering activity", falls within the beginning of the 90s of the XIX century and the end of the 20s of the XX century. What features characterize this period? First of all – it is the rapid development of the technology itself, associated with the invention and introduction of fundamentally new technological processes in the production process.

The third period in the history of engineering in Russia is extremely complex and contradictory. It was connected with the late thirties of the XX century and was getting quite rapid development by the end of the seventies. This is a problem of quantity and quality of preparing specialists. The basic requirements for vocational education were formulated this way: it must be sufficiently broad and solid, not having the character of "artisan", should be associated with general and polytechnic knowledge, meet the requirements of scientific and technological progress, based on the combination of studies with production labor.

The fourth period – was a period of engineering activities extensification. It refers to the end of the 50s and early 60s of the twentieth century. The main feature was − a significant increase in the number of engineers graduating from technical higher institutions. The second feature of this period – was the development of particular engineering majors. These measures could not but lead to a sharp decline in the quality of training and, consequently, the prestige of engineers.

The engineering conversion process and improvement of engineering education continues at the present time, as well. Since the mid 80s, we have been witnessing the beginning of a new, the fifth period in the history of engineering education in Russia – the ever-increasing humanization of engineering (Danyluk, 2000; Garayev, 2006; Safin, 2001).).)..

With regard to the Republic of Tatarstan, it is considered one of the economic, cultural and educational centers of

the Russian Federation. When viewed from the perspective of educational potential, it can be noted that in the region there is a comprehensive system of general, further and vocational education. There are institutions functioning in Kazan that train specialists for almost all spheres of human activity. Many higher education institutions are among the best public educational institutions of Russia, which are characterized by national trends in improving the qualities of modern higher engineering education.

2.3 A model of creative-project activity's systemic commitment to an engineering technologist's self-development

For the commitment system of creative-project activity to the engineering students' competitiveness self-development it was important that all the components (objectives, contents, methods, learning and education environment) were working for the ultimate goal − self-development of professional creativity, self-development of the competitiveness of a student as a future specialist. With this approach, it is clear that primarily the system-target principle shall operate which at the same time does not exclude, but presupposes the systematic structural analysis and synthesis of the basic elements of the newly designed system that can, in our view, be represented in a form of a structural model as follows (see. fig.1).

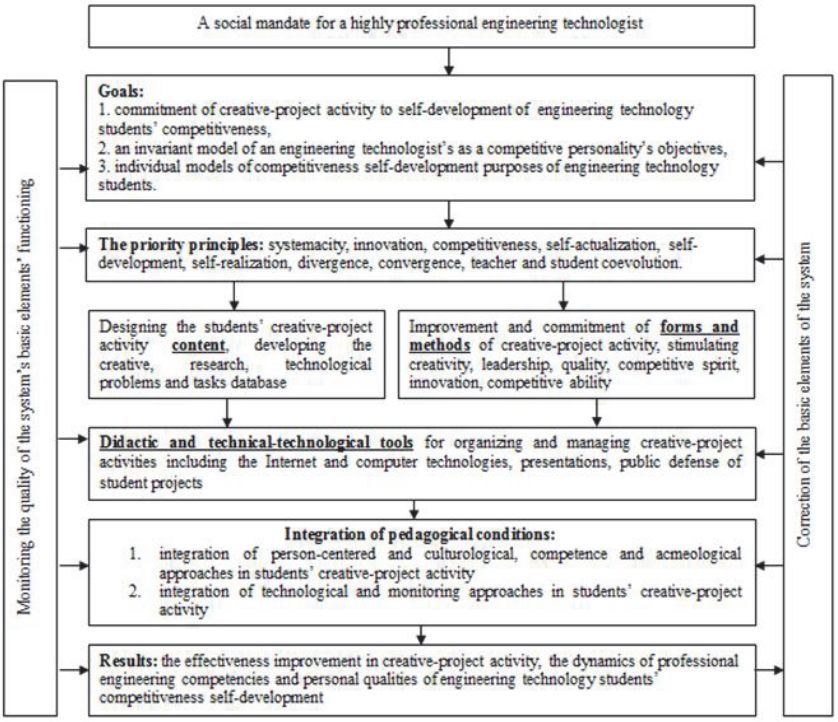

Fig.1. The model of systemic commitment of creative-project activity to engineering technology students' competitiveness self-development

In this structural model there are ten subdivided clusters:

1) the social mandate cluster;
2) the creative-project activity goals cluster;
3) the priority principles cluster;
4) the content cluster;
5) the forms and methods of vocational training cluster;
6) the didactic and technical-technological tools cluster;
7) the integration of pedagogical conditions cluster;

8) the teaching monitoring of creative-project activity qualities cluster;
9) the results cluster;
10) the cluster of correcting the basic elements of creative-project activity commitment to self-development of the engineering technology students' competitiveness.

Given the identified "clusters", it is manageable to structure and build up a "Model of systemic commitment of technical university students' creative-project activity to their self-development (see Fig. 1).

3. Materials and Methods

The pedagogical experiment was conducted to test the effectiveness of the model of systemic commitment of the creative-project activity to engineering technologists' self-development. The effectiveness of this model was tested using specially developed proprietary assessment and self-assessment techniques "self-conception of students' competitiveness self-development", questionnaires-surveys for higher education teachers, which allowed to evaluate and identify the significance rating, as well as the dynamics of the formation of personal and professional qualities that characterize the process of self-development of students'- future engineering technologists' competitiveness. In the pedagogical experiment there were widely used methods of participant observation, expert evaluations of university teachers in the field of light industry. At various stages of the pedagogical experiment there were more than 400 students involved. Special pedagogical "knowledge check tests" (diagnostics of the students' creative-project activities efficiency, assessment of development and self-development of personal and professional qualities that characterize the formation of their competitiveness) were mainly conducted at the 1st, 3d and also 5th years of study. This was done in order to trace the dynamics of both the newly designed didactic system and its results.

4. Results and Discussions

During the processing of the pedagogical diagnostics results, the normality testing of the features' results distribution by calculating the indicators of the arithmetic average, of median and mode with the help of the Microsoft Office Excel product was carried out. The Student t - test was used to determine the significance of differences between the average values of the indicators.

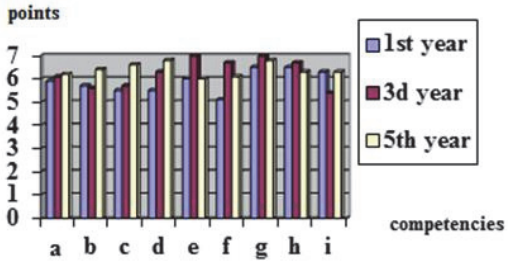

Fig. 2. Students' self-assessment of professional-creative competencies levels

Further the pedagogical diagnostics results of the greatest scientific interest are offered.

The horizontal scale – is the competencies: a) the ability to see and formulate an engineering problem; b) the ability to generate ideas; c) the ability to find adequate methods for solving an engineering problem; d) the ability to accurately plan the solutions to a creative engineering problem; d) the ability to design everything, calculate; e) the ability to formally establish the solution to a creative engineering problem; g) the ability to use computer equipment; h) the ability to carry out information search of the necessary data; i) the ability to organize the defense and presentation of the project.

It is determined that students of all the years of study highly evaluate their ability to use computer equipment (1 rank in all the years: 6.5; 7 and 6.8 points)

Based on fig. 2, there is shown the dynamics of changes of the students' formed professional competencies.

Thus, in the first year the students highly evaluate their abilities to use modern information technologies: the abilities to carry out information search of the necessary information (6.5 points), to organize the defense and presentation of the project (6.3 points − rank 2), as well as the ability to design and calculate everything (6 points), the

application consistent with the 10-point scale.

By the third year the students, except for the ability to organize the defense and presentation of the project, also note a sufficient level of the skill to formally establish the solution to a creative engineering problem (6.7 points − rank 2).

In the fifth year the competencies assessment picture is radically different with a shift on the content richness of these competencies. Among the important and highly valued professional competencies the students distinguish: the ability to accurately plan the solution to a creative engineering problem (6.8 points − rank 1), the ability to find appropriate methods for solving an engineering problem (6.6 points − rank 2) and the ability to generate ideas (6.4 points − rank 3).

Notable is the fact that the students mark their weaknesses in the ability to formally establish the solution to a creative engineering problem (in the 1st and 5th years of study) and in the ability to present their project (3d year), which has determined the direction for the necessary pedagogical correction in the course of vocational training.

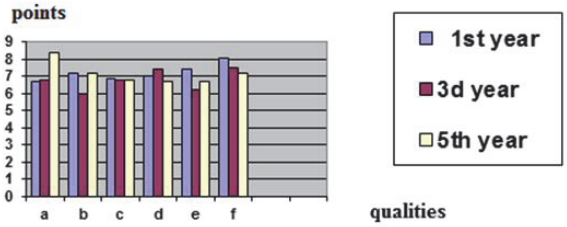

Fig. 3. Self-assessment of capabilities for self-development of professional qualities

The horizontal scale – is qualities: a) creative attitude to work;

b) high professional competence; c) ability to take responsibility in a difficult situation; d) high working capacity;

d) progressive views

e) teamwork ability.

Students of 1 - 3 years attribute the teamwork ability to highly valued real professional qualities (8.1 points and 7.5 points), by the 5th year this quality does not lose its significance and students assign the second rank to it − 7.2 points (fig.3).

Freshmen to their professional qualities also refer: progressive views (7.4 points) and high professional competence (7.2 points), which indicates the lack of students' adequate professional self-esteem.

In the 3d year, according to the students, they have a high working capacity (7.4 points) and a creative attitude to work (6.8 points).

In the 5th year the students are focused on the evaluation of the professional qualities as such, namely, creative attitude to work (8.4 points) and high professional competence (7.2 points).

The least significant professional qualities for self-development in the 1st year are creative attitude to work (6.7 points), in the 3d year − high professional competence (6 points), and in the 5th year − progressive views (6.7 points).

Thus, the analysis of the obtained data on self-assessment of capabilities for self-development, leads to the conclusion that the most significant dissonance between the real qualities and students' potentialities manifested itself in the 3d year, in the 1st year the self-esteem inflation of students' potentialities was revealed. The fifth year is characterized by adequate self-esteem of professional and personal qualities, testifying to the productivity of designing the "Self - conception" at the courses of different disciplines, which was being realized during the pedagogical experimental process.

Let's range the value orientations (fig. 4).

For the 1st year of study, health (8.4 points), material values (8.4 points), family values (7.9 points), professional priorities and values (7 points), creative self-realization (7 points), social values (6.8 points) and humanistic values (6.2 points) are important.

For the 3d year students, family values (8.9 points), health (8.5 points), material values (8.5 points), professional priorities and values (8.2 points), social values (7.5 points), creative self-realization (7.4 points), humanistic values (6.5 points) are important.

For the 5th year students the value orientations are the following: family values (8.5 points), material values (8.4 points), professional priorities and values (8.2 points), social values (7.5 points), creative self-realization (7.4 points), health (7.4 points), and humanistic values (6.7 points).

Thus, for the full-time tuition students the most important values are, first of all, family values and material values. At the same time humanistic values are not completely formed. But it is very important that the "professional priorities and values" have shifted in the students' assessment from the 4th place to the 3d, indicating a positive impact on the students' systematic involvement in the creative-project activities.

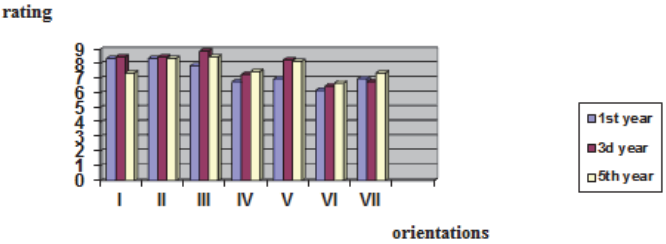

Fig. 4. Assessment of the value orientations and priorities of students

The horizontal scale – is the value orientations and priorities:

I. Values of physiological type (it is important to have good health, to feel complete safety).
II. Material values (financial independence is important, confidence in the future).
III. Family values (it is important to be loved: I want to have a family and my circle of friends).
IV. Social values (it is important to feel recognition of colleagues and respect of the surrounding company).
V. Professional priorities and values (it is important for me to succeed in life, to have stable position and career development).
VI. Humanistic values (social welfare, social justice, et cetera).
VII. Creative self-realization (it is important for me to make the most of myself and my creative engineering abilities).

The experiment was attended by experts − heads of Kazan light industry enterprises, which are the representatives of the Board of Trustees of the Kazan State Technological University. This group of experts, on the one hand, are interested in raising the level of professional culture and competitiveness of today's engineering technologists, on the other hand − are concerned about improving the quality of education of future professionals. The second group of experts was the faculty members, the members of the State Attestation Commission.

We will especially note that the experts from the two groups during the interview were given equal time to respond and equal psycho-emotional conditions were created, excluding the impact of external factors on the respondents.

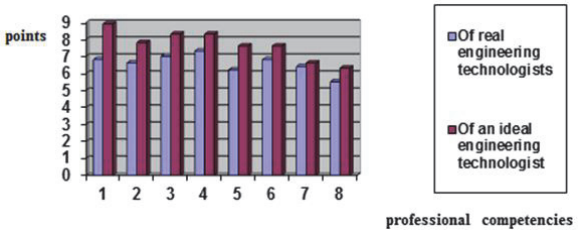

Fig. 5. Evaluation of a competitive engineering technologist's professional competencies distribution by heads of the enterprises

The horizontal scale – is competencies:

1. Developed engineering thinking: the ability for professional self-development.
2. The critical analysis ability in their professional activity
3. The ability to think logically.
4. Developed intuition.
5. The ability to integrate ideas.
6. The ability to allocate the primary from the secondary.

7. Healthy ambitiousness.
8. Creativity.

Among the important real professional competencies the heads of the enterprises distinguished: developed intuition (7.3 points), the ability to think logically (7 points) and the development of engineering thinking: ability for professional self-development (6.8 points).

Interesting is the fact, according to the experts – top managers, that an engineering technologist may not have highly developed creative abilities (5.5 points).

This situation is convenient for the administration from the perspective of authoritarian leadership, when an engineer is able to quickly and logically competently offer various solutions to professional problems without creative initiative.

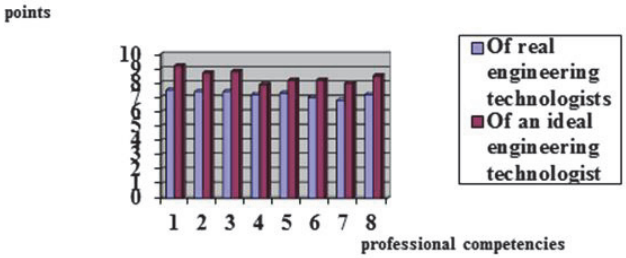

Fig. 6. Evaluations of a competitive engineering technologist's professional competencies distribution by the members of the KSTU State Attestation Commission

To the most important professional competencies of an ideal engineering technologist the heads of the enterprises refer: developed engineering thinking: the ability for professional self-development (8.9 points), the ability to think logically (8.3 points), developed intuition (8.3 points), and the ability to critical analysis of professional activities (7.8 points).

It is interesting that the heads of the enterprises have not changed their views on the need for high creative abilities of a competitive engineering technologist (6.3 points).

However, the biggest gap in the assessment of professional competencies was acquired by the basic quality – developed engineering thinking: the ability for professional self-development (2.1 points).

The horizontal scale – is the competencies:

1. Developed engineering thinking: the ability for professional self-development.
2. The ability to critically analyze in their professional activity
3. The ability to think logically.
4. Developed intuition.
5. The ability to integrate ideas.
6. The ability to allocate the primary from the secondary.
7. Healthy ambitiousness.
8. Creativity.

As it can be seen from fig. 6, members of the KSTU State Attestation Commission evaluate these real professional competencies of an engineering technologist fairly equally because of the notion of professional competencies that characterize graduates.

Among the most important real professional competencies the experts point out: developed engineering thinking: the ability for professional self-development (7.5 points), the ability to critically analyze in their professional activities (7.4 points) and the ability to think logically (7.4 points).

On the basis of the experimental data it has been identified that the evaluation of the professional competencies of a real and ideal engineering technologist was higher among the experts – the members of the KSTU State Attestation Commission owing to the orientation of the teachers to a perfect model of a competitive specialist.

At the next stage of the experiment the correlation relationships between the priority professional and personal components of the Self-conception of a competitive engineering technologist's self-development were revealed.

The calculation of the Pearson correlation coefficient was performed using the statistical software SPSS.

The Pearson's correlation coefficient was calculated with the following formula:

$$r_{xy}=\frac{S_{xy}}{S_x \cdot S_y}=\frac{n\cdot(\sum x_i y_i)-(\sum x_i)\cdot(\sum y_i)}{\sqrt{\left[n\cdot(\sum x_i^2)-(\sum x_i)^2\right]\cdot\left[n\cdot(\sum y_i^2)-(\sum y_i)^2\right]}}$$, where

S_{xy} – is the covariance of X and Y indicators, the value of which does not depend on the average values and on the volume of the sampling and is equal to:

$$S_{xy}=\frac{\sum_{i=1}^{n}(x_i-x_{cp})\cdot(y_i-y_{cp})}{n-1}$$, where

$x_i y_i$ – individual values of the i - tested.

The significance test of the correlation coefficient was carried out according to critical values of the sampling coefficient of linear correlation with the confidence level at $p \le 0.05$ and $p \le 0.01$.

The discovered correlation relationships were presented in a form of galaxies, as reflected in fig. 7.

The long-term pedagogical experiment allowed specifying the priority purposes for development and self-development of students' competitiveness in improving the efficiency of the engineering-technology education, as reflected in the hypothesis of the research, which basically was confirmed.

As a result of the pedagogical experiment a number of provisions, conclusions were formulated in a generalized way. Their essence is that in the process and as a result of the pedagogical experiment a steady dynamics of personal and professional qualities of students is traced in the innovative system of students' creative-project activity.

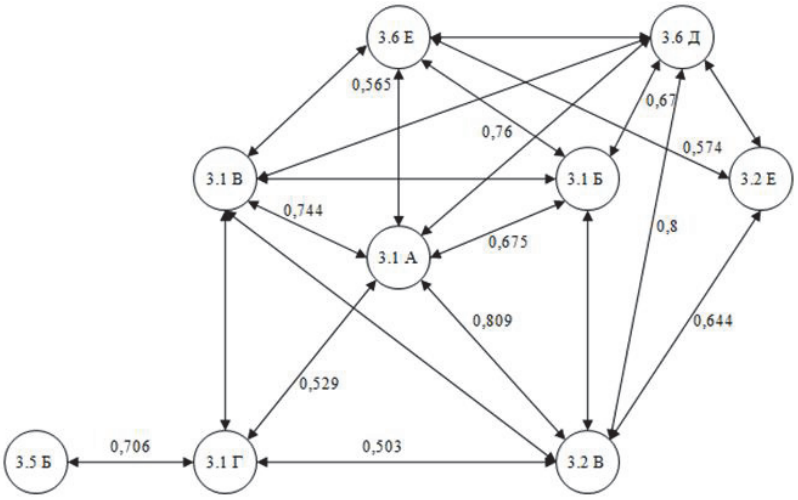

Fig. 7. Correlation relationships of qualities and competencies of the students' competitiveness invariant model

3.1.a − a creative approach to business,
3.1.b − high professional competence,
3.1.c − ability to take responsibility in a difficult situation,
3.1.d − high working capacity,
3.1.e – teamwork ability,
3.2.f − creativity,
3.2.g − intuitiveness,
3.5.h − responsibility,
3.6.i − tolerance to a different opinion,
3.6.j − progressive views.

Higher education teachers, who participated in the organization of students' creative-project activity, have a positive attitude to designing and implementing an innovative pedagogical system.

It should be noted that in recent years there has been a steady dynamics of student projects defenses with a grading of "excellent": in 2003 − 45%, in 2004 − 48%, in 2005 − 50%, in 2006 − 53%.

5. Conclusion

Thus, in the process of systemic monitoring of qualities and efficiency of creative-project activities of students in the assessment and self-assessment of their personal and professional qualities both the students themselves, and university teachers were participating, as well as independent experts − representatives of businesses and organizations of light industry employers.

Most of the 1st year students in the evaluation of both personal and professional qualities that characterize their competitiveness have self-esteem inflation, which becomes more and more adequate by the 5th year.

The monitoring approach to assessing personality traits and core competencies of creative-project activities of students allows obtaining reliable feedback and implementing effective educational support and correction in the development and self-development of students' − the future engineering technologists' competitiveness.

The students - prospective engineering technologists more often underestimate the role and importance of the moral qualities of citizenship and patriotism for self-development of their competitiveness.

The employers acting as experts in the evaluation process of personal and professional qualities underestimate the role and importance of creativity in the context of evaluating the competitiveness of an engineering technologist, which means that so far for an employer more important is a docile performer, than a person with a high creative potential.

We regret to note that even the experts − the university teachers underestimate the moral qualities such as honesty, justice and patriotism in the context of preparing a competitive engineering technologist.

The correlation analysis of the pedagogical experiment results has revealed the core personal and professional qualities: dedication, creative attitude to work, high professional competence and ability to take responsibility in a difficult situation, high working capacity, teamwork ability, responsibility, progressive views, tolerance to a different opinion, and others.

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Designing a Model of Interaction of Economic Resources in the Quantization Conditions of Economic Area

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Abstract

The article aims to develop a methodology for investigating cyclic recurrence of economic phenomena in the quantization conditions of the modern economy. The article highlights the quantization levels and the adaptive possibilities of stabilizing the economic processes and phenomena. The authors have developed a target model of interaction of economic resources in the quantization conditions, allowing to identify the type and stages of interaction at the current time. The results of the research have a wide range of applications in the development of specific manifestations of economic regularities by researchers, practicians working in the field of economics.

Keywords: *economic area, economic resources, quantization, modeling, interaction*

1. Introduction

1.1 Background

The epicenter of the cyclical development is a crisis that carries the impetus for further development. The driving force of the economic cycle represents the impracticability of further development of economic systems at the existing level of production development within the boundaries of this scientific-technological paradigm. Consequently, the crisis, despite of all its negative consequences, carries out a positive role, introducing an element of self-development of the life process.

There is an obvious connection between technology and knowledge deficit and the natural resources aggravating

scarcity at the level of the philosophy of unity and interaction features within the micro-, meso- and macro-levels, as factors of evolution. In our opinion, the main field of this interaction is the information market, which is integrated with the means of production, labor, government regulation and employment, becoming the main tool for achieving the advanced competitiveness. National priorities, arrayed in the spirit of knowledge-based economy, allow solving the facing pressing challenges, creating information-effective society, which at the same time becomes a conductor of new technological ideas, and a power to mobilize the hidden reserves of the economy.

1.2 Status of the problem

Development of scientific-technical and the related social process happens inconsistently, discretely for certain periods of socio-economic development caused by their own specific impulse, confirmed by statistical data on the growth rates of industrial production, changing sectoral structures, employment, and on the growth rates of GDP and national income, et cetera.

The specified problem had great significance for the development of the economy, which has led to its display in works of many economists of XIX and XX centuries. The activities of such scholars as Marx(1990), Rodbertus-Yagetsov(2012), Mitchell (1927), Kitchin (1923), Schumpeter (1939) and others are devoted to research of economic cycles. In the works of these economists there are many different interpretations presented that determine the causes of cyclical development, as well as a variety of explanations of manifestations of the economic cycle and relatively adequate forecasts of economic activity (Dobrynin, Miropolsky, 1998; Simkina, 2000; Schumpeter, 1934).

Elements of the theory of quantum physics and their application to social and economic processes and phenomena are discussed by the authors Talbert, Bernstey (1995), Pan et all (2000), Blaug (2008), Shurkina (2014), Svirina et all (2014) and others.

1.3 Hypothesis

Actualization of an adequate system of integration into the information infrastructure, which should not only support the subjects of market relations in all areas of their work, but also provide an incentive for change and mobilization of domestic resources, stresses the need for the proper functioning of the market mechanism. Cyclicity in the form of economic dynamics is a continuous wave-like movement, alternating extensive and intensive types of development. Without a clear understanding of mechanisms underlying these changes it will be quite difficult to identify the manner in which the information infrastructure can and should be a source of resources for the modernization of the domestic industry, which is based on innovative processes. And, accordingly, to transfer to what is essentially new, the innovative attitude to information resources and technologies of their management should become one of the most important conditions for the accelerated development of the Russian economy, as we have seen it in the leading countries of the world.

2. Materials and Methods

2.1 The definition of a quantum system

In order to improve the processes of economic resources interaction in the socio-economic system, we will describe their combination in the form of a quantum system, i.e. in terms of states. Since in the foundation of the theory of quantum information underlies the principle of superposition of states, which says, that if a system can be in different states, then it can be in the states that are obtained by simultaneous "overlapping" of more than one state from this set, which fully reflects the activity of the socio-economic system.

We will represent a specific process in a form of a state vector, as it is a description of a closed system in the chosen basis. This description is given by the Hilbert space vector.

A wave vector, as a special case of the state vector, that is one of its coordinate representations − as the basis the spatiotemporal data are selected − can be used to directly specify the function of socio-economic process, not only with specifically selected parameters, but also with their particular values.

Any socio-economic process of economic resources interaction has inseparability (quantum entanglement), which implies the impossibility of separating the system into separate, autonomous and completely independent components.

Nonlocal correlations or quantum correlations are inseparability specific effect, consisting in a consistent behavior of individual parts of the system, which leads to the fact that modification of one part of the system simultaneously has an

effect on all its other parts. In quantum physics the laws of quantum correlations are quantitatively described, which in turn makes it possible to obtain and analyze numerical evaluations of all without exception parameters (coefficients and immediate values) in the interaction within the system, describing the socio-economic processes in general.

Any socio-economic process is a system in which the principle of synergetics works, and, being directed to a particular object, represents a coherent state of individual processes, because it is a superposition of pure states, that is "overlapping each other" with different states of the existence of a closed system. Coherence in this case means the coordinated behavior of individual forming parts of the system by nonlocal correlations between them.

2.2 State space formation of the economic system and processes

Hilbert space, including a state space, that is, a set of all potential states of the system, represents all possible, developed, and as yet unknown variants of socio-economic processes with parameters for each individual case with the values of all possible parameters.

Since the set of all possible interacting with certain coefficients of options and their values is a system, then subsystems can be allocated, which represent specific processes with specific values.

Thus, the socio-economic process of economic resources interaction can be used with intricate in internal state concepts, decoherence of the overall structure of the economic resources interaction in connection with the violation of nonlocality (impossibility to compare local elements), as well as with a decrease in quantum entanglement between the forming parts of the economic system as a result of its interaction with the environment. Decoherence of the socio-economic system is permissible due to its separability, that is, the possibility of separating the system parts as fully independent objects that can only be possible if there is lack of interaction between the system components.

Hilbert space of the processes of socio-economic systems is stored in the density matrix, using which it is possible to describe both the closed systems and the open ones, interacting with their environment. Any system in quantum theory corresponds to a certain state of the system, that is, the materialization of certain potentials of the system under these conditions. It is determined by a complex of measurable characteristics that manifest themselves, in particular, as a result of self-influence. The state of the system is defined by a state vector or density matrix. A part of the socio-economic processes are open systems, which are characterized by a mixed state, that is a state of the system, which cannot be described by a single state vector, but formalized only by the density matrix, that is the opposite of a pure state or a system isolation (it is a system state described by one state vector).

Since an entropy serves as a measure of disorder in a system, then the larger the number of admissible states a system has, the higher an entropy is. This is a major "minus" of the model.

3. Results

3.1 Evaluating the measure of the economic resources' interaction

Investigation of the interaction of economic resources at the level of a business agent means that its external and internal environment should be assessed in the conditions of uncertainty. Let us estimate the interaction of economic resources as a key internal factor in the development of an entrepreneurial agent as follows:

$$ER_i = r_i \sum_{k=1}^{q} r_{ik} \psi_{ik} \qquad (1)$$

where ER_i − is the number of i-th enterprise resource available at a given time, in cash or in kind; r_i − is the number of i-th resource, which an economic agent has in accordance with the deterministic approach; ψ − the wave function that describes the state r_i, that is the characteristic of the resource used by the economic agent in each timepoint during the whole period of existence; *k (1 ÷ q)* – is the resource number for a certain period.

The wave function implements the proposed by Heisenberg uncertainty principle for the processes of socio-economic development, and allows to formalize a way for determining the level of uncertainty at each stage of the business cycle on the basis of an evaluation of internal and external environment of the enterprise.

For the purposes of this research, the data on the performance efficiency of nine companies (small and medium-sized businesses and corporations of different industry sectors: construction, processing and production of petroleum, chemical industry, services), which included a preliminary assessment on efficient use of resources, calculated as the

ratio of profit to total resources consumption. The evaluation of the effectiveness of the resource interactions was carried out using deterministic and quantum models upon expiration of three months after the preliminary assessment using the financial data of the enterprises, as well as expert evaluations.

3.2 *Correlation analysis for deterministic, quantum and actual efficiency of interaction for the material and human resources*

The results of the Pearson correlation analysis for the material and human resources are presented respectively in Table 1 and Table 2.

Table 1. Pearson correlation for deterministic, quantum and actual efficiency of interaction between material resources

Indicator		DEMR	QEMR	AEMR
Efficiency material resources (deterministic model) DEMR	Pearson correlation	1	,919**	,951**
	value		,000	,000
	N	9	9	9
Efficiency material resources (quantum model) QEMR	Pearson correlation	,919**	1	,985**
	value	,000		,000
	N	9	9	9
Actual efficiency material resources AEMR	Pearson correlation	,951**	,985**	1
	value	,000	,000	
	N	9	9	9
** Correlation is significant at the 0.01 level				

The data in Table 1 show that the assessment of the efficiency of interaction of material resources provides a higher reliability of forecasting the future activities of the economic agent.

Table 2. Pearson correlation for deterministic, quantum and actual efficiency of interaction between human resources

Indicator		DHMR	QHMR	AHMR
Efficiency human resources (deterministic model) DHMR	Pearson correlation	1	,902**	,908**
	value		,000	,000
	N	9	9	9
Efficiency human resources (quantum model) QHMR	Pearson correlation	,902**	1	1,000**
	value	,000		,000
	N	9	9	9
Actual efficiency human resources AHMR	Pearson correlation	1,000**	,985**	1
	value	,000	,000	
	N	9	9	9
** Correlation is significant at the 0.01 level				

The data in Table 2 confirm the results of previous correlation analysis, therefore, the use of the quantum approach in assessing the interaction efficiency of economic resources makes it possible to obtain more accurate data in advance planning of the economic agent's activity.

3.3 *Quantitative assessment of information resources*

Effectivization of the economic entity, as a rule, leads to structural transformations in the management of resources of the economic entity. Modifications of the external environment actualize the need to assess anew the formed organizational communications of the management subjects and the operation of resources in the activities of the economic entity. Information resources that form a particular information field which enables the exchange of information between the economic entities, are becoming of paramount importance that, in the light of computer technology development, is leading to formation and development of the information technologies contributing to the management efficiency growth. Introduction of innovative information technologies intends to improve as a primary objective the collection, processing, storage, use, accumulation and submission of information, allowing to bring the information resource to a higher level of

quality. In this context, dual nature is inherent in the information resource, which consists in the fact that it is, on the one hand, an independent resource on a par with the materials or personnel, and on the other hand − a management tool promoting the effectivization of management decision making.

Development of the information society has repeatedly increased the volumes of information circulating in the global economic space. Perception and use of the information requires the availability of a certain individual recipient's thesaurus S_g, reflecting the level of knowledge of the recipient, that is, a priori knowledge of the recipient. Clearly, this amount of information I_c. is nonlinearly dependent on the adequacy of the individual user thesaurus, and, despite the fact that the semantic content of the information message S is constant, the recipients having different thesauri, will be getting unequal amounts of information. In case of proximity of the information recipient individual thesaurus in the considered sphere to zero $S_r \approx 0$, in this case, also the amount of information perceptions by the recipient will be equal to zero: $I_c=0$.

Possible is also the opposite marginal case, that is an individual recipient thesaurus $S_r \to \infty$, that is the recipient has absolute information about the analyzed subject, which leads to impossibility of further information generation. Respectively between the specified polar values of the thesaurus there is an optimal value, $S_{r\,opt}$.

In the conditions of the economic space quantization it is proposed to estimate the quantity of information resource as a value that helps to achieve a set goal, relying on the statistical theory of Shannon and considering the quantity of information resource as an increment of the probability of achieving the goal. In case the probability of achieving the goal before the use of the information resource is equal to P_0, and after the use − P_1, then the quantity of information resource I_r is defined as:

$$I_r = \log \frac{P_1}{P_r}. \quad (1)$$

The need for an information resource in the production of science-intensive and traditional products is increasing, and the inclusion of information in the price of the goods being traded involves also the consumer in the value chain, which is growing to the maximum of possible extent, and appearing in a variety of networks, hierarchically interconnected with various degrees of tightness and time of mutually beneficial operation. The views of different authors on the usefulness and value of the information resource are presented in the works by M. Koemtsi (Koemtsi et all, 2001). An information resource is only then good for the economic system, when there is usefulness in applying it to the process of current performance within the given system, that is, the utility level of the information resource determines its value. They claim that the Value of the information resource directly depends on the quality of the decisions made and the actions based on those decisions, that is, only the correctly used information resource is of value (Torrington, Wightman).

According to another author, the value of the information resource is defined as the maximum benefit that a certain amount of information can bring to the reduction in the average losses (Stratonovich, 1975).

Thus, we can assume that the value (Val) of the information resource represents a criterion of tangible and intangible effects acquired through the use of the information resource or as an increase in the degree of achieving the established goal:

$$Val = \log_2 \frac{P}{p}, \quad (2)$$

where p – is the probability of achieving the goal before the use of an information resource with a priori information;
P – is the probability of achieving the goal after the consumption of an information resource, in the case, if P < p.
Consequently, Val – is a negative number, which tells about the transformation of information into misinformation.
In the case of achieving the established goal, P = 1, the value of the information resource is maximum, therefore,
Val=Val(max)=log2n. (3)
An indispensable condition for achieving the goal is to use a modified formula:

$$Val = \frac{P - p}{1 - p} \quad (4)$$

where Val varies within [0-1].

In the case of equal probability of the events p=1/n, where n – is the number of variants, p – normalized multiplier (Isaev, Nemchin, 2002).

The information resource value has a subjective character, as it is evolving, developing together with human society (the valuable becomes not valuable and vice versa), and depends largely on the recipient. The information resource consumption process is even more difficult for an assessment than its production, as the subjective nature of consumption is higher. The needs for an information resource are endless. However, if we assume that a consumer

knows his information resource needs, the number of the needed information resource acquires foreseeable outlines. The need for an information resource increases, but at a decreased pace. This tendency is confirmed by the mathematical theory of information.

4. Discussions

The interaction of market participants are based on a continuous exchange of information, with that the distribution of the information flows across networks and the economic space requires a certain amount of time. Information is an essential component of any economic system. A system cannot exist without information support, since by virtue of the objective properties, information reduces the degree of its entropy, it structures the elements. Violations of information flows, lack of relevant information − lead to failure of systems, to decrease in their effective functioning. Economic actors, depending on the prevailing conditions, are constantly changing the operating parameters, which leads to inconsistencies in real state of objects, events, transaction terms and content of the requested, transmitted information. These reasons form the background distortion and asymmetry of the information field and causes subsequent inadequate, inefficient actions of market participants.

Some features of managing the economic systems are caused, in our opinion, by the quantization of the economic area, as well as by a manifestation of the quantum nature of economic processes at the level of economic systems in a state of instability, that is the economic systems open to external influences, changing under the influences in accordance with the response to the impulses representing an impact of the environment and directed to development of the system. Quantization of the economic space is characterized by the reaction of the system to a certain amount of the external impact impulse and allows to outline the level of inertia of the system, i.e. the duration of its existence in terms of external influences perception upon itself.

According to the author, the conducted research updates the application of the quantum theory elements, as well as the research methods and tools used in quantum physics, to determine the state of the elements of the economic space which possesses the quantum nature, and having restrictions on the measurability, as of the timepoint under analysis.

5. Conclusions

The need for an information resource in the production of science-intensive and traditional products is increasing, and the inclusion of information in the price of the goods being traded involves also the consumer in the value chain, which is growing to the maximum possible extent, and appearing in a variety of networks, hierarchically interconnected with various degrees of tightness and time of mutually beneficial operation.

Every extra unit of an information resource has a diminishing marginal utility, since the area of uncertainty with each new unit of information resource is reduced by half. Purchasing information under the marked assumptions is expedient as long as the marginal utility of each new piece of information is on par with the marginal costs for its acquisition. Thus, the complete elimination of uncertainty is inexpedient for economic agents, and they will be choosing the optimal level of uncertainty in accordance with the marginal utility of an extra unit of the information resource and the marginal costs for receiving it. The advantage of using the methods of quantum physics in consideration of functioning of the socio-economic systems is also in the ability to use simultaneously an unlimited number of parameters and a number of values for each, as well as in the instant productivity at manipulation with numerical values, which is associated with the use of capabilities of quantum information units − qubits or quantum bits, allowing to store simultaneously all of the above values.

The developing concepts on the basis of quantum physics allow the application of theoretical insights from the field of quantum information for modeling social and economic processes, that is due to the fact, that the quantum description is the most comprehensive of all the famous descriptions of reality, which will allow to increase reliability of advance planning for economic agents.

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An Adaptive Man: Hardiness Resources In the Conditions of System Crises at the Turn of the XIX-XX and the XX- XXI Centuries

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Abstract

Importance of the studied problem is caused by the need of investigating a prompt and many-sided transformation of the personality in the conditions of the crisis era. Globalization and a mass scale migration process that provoked interaction of norms of traditional and information societies. The purpose of the article is a complex retrospective analysis of ecological and biological, social and psychological indicators of the personality's hardiness in the context of society transformation at the turn of the XIX-XX centuries and the XX-XXI centuries in the conditions of the Post-Soviet transition. Such cross-disciplinary analysis of psychology, history, cultural anthropology, pedagogics, ecology – gives an opportunity to develop algorithms of increasing efficiency of the human capital and to increase quality of health improving technologies and mechanisms of increasing the personality's hardiness. The leading approach in research of such complicated process is a complex retrospective analysis on the basis of interdisciplinary and integrative approaches. It is such approach to a research problem that has been realized in this article. The result of it is systematization of ecological and biological, social and psychological hardiness markers of the individual in the conditions of society transformation; the analysis of components of social competence of the personality at the personal and behavioural levels and major factors of adaptation of the personality in the conditions of the catching-up development of Russian society, and also psychological, traditional and historical and ecological aspects of the person's development in the conditions of a crisis era on an example. Materials of the article can be useful for working out adaptation technologies and techniques for migrants, for work in the social and educational sphere, in the centers of psychological assistance. It is possible to develop the content of the expert system on the basis of the designated criteria in the long term.

Keywords: *psychological characteristics of the past; historical psychology; society transformation; mentality; ecology of the man; hardiness of the personality, personal potential; expert analytical model; cultural practices; social structural crises.*

1. Introduction

Modern crisis era combines systemacity and designing of traditions which often are a mixture of former and new meanings (Hobsbawm, 1983). An interdisciplinary approach is required for its studying. In particular only from these positions, it is possible to trace transformation of the person's adaptation abilities in a crisis era in a historical retrospective (Toffler, 2002) on condition of an internal contradiction in interpretation and understanding of traditions. Mental human life represents the unity in which the scientific analysis distinguishes such separate parts as mental processes, states, relations and properties of the personality where the personality is characterized, first of all, by the

system of the man's relations to the external world and to himself (Myasishchev, 1960). Studying the interaction of the person with the ecological and social environment in the conditions of society transformation and social transition is the practice-oriented problem of modern Russian society. The behavior of the person, his strategy and dependence on the environment in the conditions of transition from traditional to industrial and to information society is based further on the set of spontaneously arising ideas about the environment and the person's abilities which are formed by the dominating tradition and the existing knowledge. Collision of these ideas with the accelerated process of changes causes an imbalance of the personality and decrease in its hardiness and social activity. Static measurement of society was studied by Russian and foreign researchers to some extent. However models of the personality's transformation in the context of change of historical, social, ecological conditions, their dynamics and the internal logic of change of the person's identification markers with the environment have not been developed completely. Forecasting and expert assessment of change of the personality in the conditions of society transformation and structural crisis of the society by means of a mathematical model will allow a competent scientific community to trace more deeply the processes of transformation of the personality in the conditions of system crises. Identifying markers of the transitional type of the personality (from Soviet to Post-Soviet and from traditional agrarian to industrial) will allow us to rethink and to trace the system change of the personality in the conditions of transition taking into account ecological, social, psychological changes in the society.

This article is an attempt to find reference points in the past and the present and to reveal traditionally working mechanisms of adaptation of the man permitting him to cope successfully with a crisis situation, and also to trace real changes of the environment influence for 100 years, to compare them with ecological measurements and data of anthropometrical measurements. In the long term it is possible on the basis of the designated criteria to develop the content of the expert system (Jackson, 2001) regarding the issues of formation, development and forecasting of the interaction process of ecological and biological, social and psychological factors for forecasting the the personality's hardiness in the conditions of society transformation (Milov, 1992).

2. Methodological Framework

2.1 World outlook contradictions of a crisis era

The modern person faces contradictions and difficulties which are almost not solvable and require a new solution every second. Understanding the world, outlook of the person is a substantial component of human culture. Each cultural person needs to picture to himself at least in general how the world in which he lives is arranged how laws of the nature "function" in it. Richard Tarnas (1991) in the book "Passion of Western Mind" describes the essence of contradictions by means of the situation of "double knot", the phrase had been introduced into scientific circulation by Bateson (1972). He uses this term to describe the situation of dependence of the child on his mother (Richard, 1991). Tarnas replaces the word "mother" with the word "world" in this formula of "double knot", and the word "child" with the word "person", recreating a picture of "double knot" of modern reality, in which there are four main postulates: 1) the relation of the person to the world is the vital dependence therefore it is extremely important to estimate precisely messages from outside; 2) the human intelligence receives inconsistent information from the world; 3) from an epistemological position, the human intelligence is not capable of establishing direct communication with the world; 4) in existential sense, the person can not "drop out of the game" (Bateson, 1972).

The Russian modern reality is supplemented also by the catching-up factors of the society development. Nature of the accelerated and catching up development of the country became almost canonical for the historiographic tradition (Shpet, 1989). Such look undervalues and disparages many aspects of life of Russia not only in the pre-Petrine era, but also at the beginning of the XX century. However it is necessary to consider that these views have a strong emotional and psychological support by means of creating an image of Russia which is incessantly lagging behind and compelled to catch up with other world (Shapovalov, 2003). Professor V. F. Shapovalov considers that breaks of social memory are not rare in the history, and from culture its whole layers can drop out making up a major part of the previous cultural era until recently. And this discontinuity of development is changing the understanding of transformation and succession. When we speak about traditions and succession, semantic content of these traditions can be various. However the current state of technological acceleration raises a question not so much of a break, but of the transformation of ideas and the internal conflict of images and ideas. We will designate the three spheres in which the man had to face changes for 100 years. This is, first of all, hardiness which accumulates all changes, the environment changes which made the person change together with it and transformation of traditions as such.

2.2 Hardiness and its criteria

The concept "hardiness", introduced by Susan Kobeysa and Salvatore Maddi, expresses individual abilities of the personality for mature and complex forms of self-control both on existential, and on the psycho-physiological level of the person's functioning (Maddi, 1994). In an existential sense hardiness corresponds to the concepts of courage (P. Tillikh, 1995), existential courage (R. Mai, 2001), readiness to act contrary to any haphazard and arbitrary actions (M. Heidegger, 1960), authorship of life (V. Frankl, 1990; I. Yal, 1999). The psycho-physiological aspect of hardiness is characterized by that role which these features play in the destructive influence minimization of stress-producing factors on a human body.

In the structure of hardiness three interconnected mental sets are distinguished: the involvement, control and acceptance of risk, determining ability of the personality to transform negative impressions to new opportunities and to resist the destructive influence of stress-producing factors on somatic health and sanity, and also on success of activity. Most researchers agree to the opinion that hardiness in many respects is determined by the fact what foundation of values will be created in the younger generation (A. Maslou, 1968; V. Frankl, 1990; B. S. Bratus, 1988; D. A. Leontyev, 2007 etc.). Being one of the highest substructures of the mental device, these values exactly and semantic orientations form the adaptation and innovative potential of the personality. At the same time according to cultural and historical psychological ideas values of the personality are determined by culture and society (E. Shpranger, 2002; E. Eriksson, 1976; A. G. Asmolov, 1990; D. A. Leontyev, 2007 etc.) . However in the conditions of modernization of traditional types of cultures the valuable and semantic reference points which earlier were determining regulation of the personality's behavior in life situations undergo a considerable transformation and devaluation. At the same time the emergence of new information opportunities, in particular in the educational environment, opens new ways for search of the best experience of overcoming the spiritual crisis which affected mankind.

One of the mechanisms of natural and seamless adoption of the best world heritage is the cross-cultural dialogue determined by culturologists as "a transnational streamflow" (T. Erikzen, 1993), "a global context" (R. Robertson, 1991), "a principle of cultural development" (A. L. Radugin, 2001) (Kravchenko, 2001; Kolesnikov, 2008). In the course of cultural dialogue borrowing and cultural diffusion take place assuming a peaceful way of transferring ideas, traditions, values and norms of life which promote progress and satisfy those requirements which the existing cultural complexes can not satisfy. Moreover, many modern researchers, after the outstanding thinkers of the XX century V. I. Vernadsky and P. Tellar de Chardenom, consider that development of humanity at domination of individualistic culture threatens the human species survival (Stefanenko, 2009). Today the positions of communitarianism are more and more affirmed approving the need of integrating individualism (respect of fundamental human rights) and collectivism (care of wellbeing of a family and society). E. Fromm (1994) called a similar ratio as the positive experience of freedom assuming self-expression of the person in love and activity while preserving the unity with society. K. Rogers (1997) fixed a harmonious ratio between internal and behavioural tendencies in the concepts "congruence" and "a completely functioning personality". K. Young (1967) called a consistent unity of the personal and collective, that constitute a personality purpose. D. Myers defines such experience as a compromise "between individualism of the West and collectivism of the East, between egoistical independence and care, between protection of the individual rights and public well-being, between freedom and brotherhood, between I - thinking and we - thinking" (Myers, 2000).

2.3 Ecological transformation (adaptation)

At present the climate change awareness gained a global character. The climate changes all spheres of human life - ecological psychological, social. According to a number of ecologists, at present man is not capable of stopping the climate change mechanism triggered in the biosphere any more. Sharp changes of temperature, extreme weather activity, droughts, floods, recession of agricultural productivity, a lack of pure potable water is not a complete list of the consequences of the global climate change which we are unable any more to affect. Medical, biological, social and psychological researches during the recent years show the interrelation of listed direct and indirect consequences of the anthropogenous climate change with deterioration of not only the man's physical condition , but with his mental health. In the 1960-s of the XX century in biological anthropology the direction which received the name of ecological / physiological anthropology was finally shaped up. (Selye, 1960). Problems of anthropoecology include research of adaptive variability of the human populations living in various conditions of the environment with use of anthropological methods. Interaction is considered in the person-culture-environment system (Alekseev, 1998).

A specific feature of the man is a continuous search of new adaptation forms by means of changes in the social organization and economic and cultural spheres. Very many elements of our spiritual and material culture can be

considered as the direct adaptive features helping (or helping once) to reduce the influence of many exogenous factors. Culture (in broad understanding) is our own "human" way of adaptation to the environment, and a very mobile, dynamic way and very effective in terms of the man's survival. Environment, certainly, has an impact on cultural development. Inversely, by means of culture the man influences the habitat – he modifies it. It is possible to distinguish two adaptation levels coordinated among themselves: biological and social (non-biological). With such approach the concept "adaptation" includes actually biological changes happening on different levels of the organization of the man (individual, population, etc.) (Lamberg-Karlovsky, 1992); various adaptations on the level of non-biological systems (spiritual and material culture, individual and social behavior). The biological adaptation process of the man is in continuous interaction with changes in the cultural and social spheres, and for each specific group of the man the significance of this or that constituting element of the general process is different. Very often cultural systems smooth the environment pressure upon a human body, but they can repeatedly strengthen the existing stress or produce new types of a stress.

Adaptation degree is rather a relative feature always relating to a concrete situation. Adaptation is always concrete. The person' organism can be only more or less adapted for a concrete combination of factors in comparison with other organisms or groups, that sign which does not look adaptive at present, can become as such in other conditions of the environment, and vice versa. As a result of studying the regularity of geographical distribution of a set of anthropological signs, the concept was introduced about adaptive type of the man as a norm of biological reaction to a complex of conditions of the environment arising independently in similar conditions, and in populations which can be unrelated among themselves genetically.

2.4 Evolution of ideas about land, community and family

A comprehensive consideration of transformation of the personality is based on the concept of socio-natural history (Kulpin-Gubaydullin, 2008) where the man is accurately included in the system "inanimate nature – wildlife – society" and recognizes the existence of general principles and laws in this uniform system, determining the character of its functioning. Main "characters" of socio-natural history are a man who is managing and containing the landscape, an object of research – the sphere of their interaction. In focus of attention – the personality in the conditions of transition from traditional agricultural society to which certain views, traditions, relation to nature, use of rituals, submission to a natural rhythm, to an industrial and post-industrial (to information society) at the two historical stages of the XIX-XX centuries and the XX-XXI centuries are peculiar. Such more detailed transformation can be traced on the example of such quality of the personality as hardiness and process of attribution of the personality.

We will consider the three elements of tradition which first of all underwent changes. The point is about deep ideas on the basis of which human life was being formed in a traditional society. The first one out of such traditional factors which underwent change is transformation of traditional idea about the land as an immutable value. So this was throughout all history of Russia. However the XX century introduces an adjustment - the land is not in itself a value, but its opportunity to give livelihood represents a value and the very fact of possibility of working on it. During the revolution and system crisis of 1917 soldiers at the beginning of the agricultural season took a plot of land and cultivated it, hastily growing crops on seedbeds to support themselves. During World War II according to memoirs of those who were abducted to Germany for work, and then they were sent to resettlement camps, this affection for the land enabled them to survive, to keep themselves alive. People, being on a foreign territory, on the territory of the enemy, worked – and worked, generally, rather well. In a number of publications this was even a subject of criticism and was treated, nearly as the fact of treachery. But for the peasants who found themselves on the land this was simply a way to forget that they were on a foreign territory, "not to go crazy", "not to be lost". After all the land - is not simply a value, it has to be cultivated and peasants' work is one of the ways of somebody's recognition as a peasant, as a person connected with land. In the 1990-s of the XX century in the conditions of the crisis in new Russia, a part of urban population was engaged actively in vegetable gardening, having made the seasonal dachas as a way to fill up the family budget directly with the produce from the land. The beginning of the XXI century shows vast areas of Russia with neglected houses and lands.

One of the traditional peasants' symbol was community, trust the irrational in its essence. In the conditions of revolutionary crisis in the summer of 1917 when a new person came and joined the rear garrisons, according to memoirs the suntanned hands were one of the signs. Because this old peasant habit to cover arms with long sleeves, without rolling them up, is connected with a field while workers in the city on the contrary - rolled up sleeves.

Transformation of the value of kin and family. The main task of the man is to survive. For the sake of what to survive? Not only for the sake of his own surviving but also because if something happens to him, his family will live in misery and starve then. The XX century changes the value of a family and kin as units for the value of specific family members. According to the materials based on letters it is clearly evident. In one of them, a person tried to explain to his

relatives the vision of the main objective in the war: "Now I understand that I have three grandsons, seven great-grandsons, and, respectively, there are so many sons, and my father did not even know, how many grandsons he had. He can not call all of them by their names… My task is to protect certain people, but not the family in general ".

3. Results and Discussions

Ecological and biological, social and psychological markers of hardiness of the individual in the conditions of society transformation in two historical stages at the turn of the XIX-XX centuries and the XX-XXI centuries are presented in the article. The analysis and systematization of scientific approaches to a psychology problem of social competence of the personality and its harmonization, hardiness in difficult situations has been carried out. The constituents of social competence of the personality on the personal and behavioural levels have been distinguished. Major factors of the personality's adaptation in the conditions of the catching-up development of Russian society, and also psychological, traditional and historical and ecological aspects of development of the man in the conditions of the crisis era are considered. Dependence of the adaptability degree of the personality on a psychological crisis situation, historical and cultural content of a crisis stage of society development has been analysed. The main changes in understanding the outside world upon transition from the agrarian, traditional society to the urbanistic modern one have been considered. First of all, it is refusal of absolutization of ideas about the land and transformation in understanding the value of the land as mother earth. The second component of basic transformation is the transformation of the value of kin and family, formation of the personal attitude towards these categories of human life. These categories permit to understand also the attitude to nature, to analyse the initial stage of formation of ecological consciousness and as a result of the compelled change of the personality's adaptive mechanisms.

4. Conclusion

A similar approach to a complex retrospective study of hardiness and transformation in the conditions of both social, ecological, and cultural crisis assumes further increase of efficiency of techniques for management and correction of low level of hardiness in modern world (for children, teenagers, youth, teachers). Interdisciplinary research will allow us to determine the main components and factors, hardiness of the personality, a consequence of decrease in its level (risk of suicides and formation of deviant behavior, regularity and dynamics of attributive processes in hardships). The study of interrelation of physical development of the population and factors of environment gives a chance to reveal risk factors of hardiness formation and adaptive capabilities of the human body among the population of a certain area for the purpose of working out recommendations on their health promotion. In practice such view of hardiness can be applied for developing adaptation technologies and techniques that can be used in training migrants who face cultural, psychological, ecological, social measurements of the host society.

5. Recommendations

Research results will help to determine the main components and factors characterizing the personality's hardiness, consequences of decrease in its level (risk of suicides and formation of deviant behavior, regularity and dynamics of attributive processes in hardships). Results of this research will give a person the chance to solve effectively hardship problems at the expense of the biological, psychological resources mediated by cultural and historical factors. The study of interrelation of physical development of the population and factors of the environment will give the possibility to reveal risk factors of hardiness formation and adaptive abilities of the body in people of a concrete area for the purpose of working out recommendations on their health promotion. The developed adaptation technologies and techniques can be applied in training migrants who face cultural, psychological, ecological, social measurements of the host society. Research results are of great importance in advisory and psychotherapeutic activity.

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Family Socialization Features of the Adolescents Prone to Deviant Behaviors (Gender Aspect)

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Abstract

The relevance of the research problem is due to the fact that deviant behavior is becoming increasingly common among adolescents, and the defects of the family socialization are one of the main reasons of this phenomenon. The article seeks to explore the impact of child-parent relationship on the propensity of adolescents toward various kinds of deviant behavior. The leading methods for the study of this problem are the psychological testing and analysis of the statistically processed obtained data. In the course of the empirical research it has been revealed that the adolescents' propensity toward deviant behavior worsens with emotional coldness, suspicion on the part of their parents, and is attenuated by the parents' psychological acceptance of their children, friendly attitude to them. The article contents can be useful for developing effective programs to reduce the adolescents' propensity toward deviant behavior.

Keywords: *socialization, family, gender, femininity, masculinity, adolescents, deviant behavior.*

1. Introduction

1.1 The relevance of the problem

Behavior of some children and adolescents draws attention by the violation of the norms, noncompliance with the received advice and recommendations; it differs from the behavior of those who fit into the normative demands of the family, school and society. This behavior being characterized by deviation according to the accepted moral, and in some cases, legal norms, is referred to as deviant. It includes anti-disciplinary, antisocial, and delinquent illegal and auto-aggressive (suicidal and self-harming) actions. According to their origin they can be due to various deviations in the development of personality and its response (Shakurov, 2007). More often this behavior is the reaction of children and adolescents to difficult life circumstances. It is on the verge of norms and diseases and therefore should be measured not only by a teacher but also a psychologist. The possibility of variance in behavior is also associated with somatic growth, conditions of upbringing and social environment (Dmitriev, Belov, Parfenov, 2010).

Normal (adequate, adaptive) behavior of an adolescent presupposes his/her interaction with a micro-society, adequately meeting the needs and opportunities of the person's development and socialization. Hence, the deviant

behavior can be characterized as the interaction of the child with a micro-society violating his development and socialization due to the lack of the milieu's adequate consideration of his personality characteristics, and manifesting itself in behavioral opposition to the established moral and legal social norms (Pais, 2000).

In modern society, deviant behavior has become widespread among adolescents. An important factor of the variance in psychosocial development of the child, in violation of the process of his socialization is the disharmonious, destructive attitude on the part of his/her parents. Modern scholars have identified certain styles of family relationships, leading to the formation of antisocial behavior of the minors:

1. a disharmonious style of educational and family relations, combining, on the one hand, the indulgence of the child, hyper-protection, and on the other − instigating the child's conflict situations; or characterized by double morality establishment in the family: for the family − one rule of conduct, and for the society – it is completely different;
2. an unstable, conflict style of educational influences in a single-parent family, in a situation of divorce, long-term separation of children and parents;
3. an antisocial style of relationships in a disorganized family with systematic consumption of alcohol, drugs, immoral lifestyle, criminal behavior of parents, manifestations of scarcely motivated "family cruelty" and violence (Mendelevich, Sadykova, 2004).

Violation of family socialization leads to inadequate gender identity of adolescents, therefore, the study of the impact of the child-parent relationships of the adolescents who are prone to deviant behavior, from a gender perspective, is relevant.

1.2 The importance of the research problem

The scientific novelty of the research lies in the fact that the relation between the child-parent relationships and the adolescents' propensity toward deviant behavior is being explored taking into the account their gender identity. The difference is being revealed in such types of characteristics as a positive interest, directivity, hostility, autonomy, inconsistency, intimacy and criticism in the relationships on the part of the mother and father, which influence the masculine and the feminine adolescents' propensity formation toward various types of deviant behavior.

The theoretical implications of the research lie in the fact that it allows expanding the understanding of the problem of propensity formation toward deviant behavior among modern adolescents, provides the opportunity to use the material for comparative studies of socio-psychological peculiarities of family and gender socialization of persons prone to various kinds of deviant behavior.

The practical implications of the research consist in the results obtained in the research and can be used in elaborating the programs of the educational process, will allow adjusting the work of teachers, psychologists, that is aimed at preventing the tendency of adolescents to deviant behavior, in order to improve the efficiency and success of their socialization. The results of the research can be used in the educational process for training specialists in the field of social psychology, sociology, psychology and pedagogy. The research materials will be particularly useful in professional development courses for psychological service employees, and educational specialists.

1.3 Status of the problem

The problem of deviant behavior is widely reported in foreign and domestic sociological literature, but it is important to note that its particular aspect – the adolescent deviation – has been studied to a lesser extent. Adolescent deviant behavior is a complex phenomenon, so the study of this problem has interdisciplinary and diverse nature.

The philosophical and methodological theories of foreign scientists are devoted to the study of deviance: anthropocentric theories of J. Kelly (2000), E. Kretschmer (1999), ext.; psychoanalytic theories of Z. Freud (2010), E. Erickson (2000), ext.; anomie theories of E. Durkheim (1994), R. Merton (2006); a theory of social learning of A. Bandura (2000).

Methodological foundations for the study of deviant behavior are presented also in domestic theories: deviantology of E.P. Zmanovskaya (2004), V.D. Mendelevich (2005); as well as in the writings of V.T. Lisovsky (1996), A.N. Gryaznov (2007), ext.

A significant contribution to the study of deviant behavior of adolescents was made by the authors investigating some certain aspects of this phenomenon. The works of V.G. Stepanov (2001), Shneider (2007), Zaretskiy V.K. and others (2011), I.A. Ustugova and others (2014), ext. are dedicated to the problem of adolescent deviant behavior manifestations caused by an unfavorable position of the child in the system of interfamilial relations. But the family of a

deviant adolescent is much less common an object of a study.

1.4 The research hypothesis

Feminine and masculine adolescent propensity toward deviant behavior is reinforced by the emergence of negative types of relationship on the parents' part, and is attenuated by the parental acceptance of their child, friendly attitude to him/her.

2. Materials and Methods

2.1 The research objectives.

In the course of the research the following objectives were being solved: 1) a theoretical analysis of the scientific literature on the research topic; 2) selection of psycho-diagnostic tools, methods of research; 3) testing of the respondents; 4) mathematical statistics data processing methods; 5) data analysis, its theoretical interpretation, formulation of conclusions.

2.2 Theoretical and empirical methods

The selected research methodology, the underlying basis of which was the socio-psychological and gender-based approaches, led to the choice of the research methods and techniques. During the work the methods of empirical and theoretical levels were used. The first is the socio-psychological testing. Methods of the theoretical level were the analysis, synthesis, comparison, generalization of the results of the empirical research. When processing the results of the research the methods of statistical data analysis were used (the reliability of average (Student t-test) differences and bilateral correlation analysis (Pearson correlation coefficient).

For diagnosing the psychological gender and determining the degree of a person's androgyny, masculinity and femininity the S. Behm's (Ilyin E.P., 2003) questionnaire (survey) for gender roles assessment was used. To study the effect of the attitude on the part of the parents toward the formation of gender identity in the process of socialization the ADOR questionnaire was used, aimed at studying the attitudes, behaviors, and the parental education methods, the way their children see them during adolescence (Wasserman L.I., Gorkovskaya I.A., Romycina E.E., 2004). To determine the propensity toward deviant behavior a questionnaire "Determining the propensity toward deviant behavior" developed by A.N. Oryol was used (Clayberg Yu.A., 2004).

2.3 The research framework

178 adolescents aged 13-17 years were involved in the research (students of the municipal budgetary educational institution "Dzhalil comprehensive high school No.1 with in-depth study of certain subjects"). There were 96 girls and 82 boys among them. Among the girls the pronounced masculine traits were found in 33 (34.4%), and the feminine – in 22 (22.9 %). The boys' pronounced masculine traits were identified in 16 (19.5 per cent), and the feminine – in 23 (28, 1%).

2.4 The stages of the research

The research was conducted in three stages:

Stage I − study of the problem of family and gender socialization of modern teenagers, analysis of the causes and identification of the factors influencing the propensity toward deviant behavior formation; definition of goals, objectives and working hypothesis of the research.

Stage II – is introduction and review of scientific literature on the research problem, collection of the statistical and analytical material to substantiate the proposed hypothesis.

Stage III − analysis and systematization of the obtained data, formulation of the conclusions and recommendations, report on the research results in the form of an article.

3. Results

3.1 The relation of gender identity and the propensity toward deviant behavior among modern teenagers

The nature of family education is associated with the emerging defects of socialization, such as the propensity toward different types of deviant behavior. In the course of the research, using the reliability analysis of average data differences, it was ascertained that masculine adolescents have higher propensity toward addictive, self-harming and delinquent behavior, as well as to the manifestation of aggression and violence (table 1).

Table 1. Significant differences in the average values on the scales of the procedure for determining the masculine and feminine adolescent propensity toward deviant behavior (Student's t-test)

Types of deviant behavior	T	p
The propensity toward breaking the rules and regulations	0.368	0.715
The propensity toward addictive behavior	1.622	0.115
The propensity toward self-harming and self-destructive behavior	2.661*	0.012
The propensity toward aggression and violence	2.654*	0.013
The emotional reactions control	0.903	0.374
The propensity toward delinquent behavior	1.801	0.082

* - statistically significant differences ascertained in the average indicators at the level of significance p≤0.05

The analysis showed that masculine adolescents are more prone to self-harming and self-destructive behavior (T=2. 66 when p=0.012), as well as to the manifestation of aggression and violence (T=2. 65 when p=0.013). Therefore, they have a lower value of their own life, higher risk appetite, a stronger need for thrills. They have a stronger aggressive orientation in relationships with other people, the propensity toward solving problems by violence, the propensity toward using humiliation of a communication partner as a means for self-esteem stabilization.

3.2 The relation between the modern adolescents' propensity toward deviant behavior and the feminine adolescents' family socialization features

To determine the relation between the established defects of feminine and masculine adolescent socialization and the family socialization features, we carried out the correlation analysis of the obtained data with the data through the ADOR procedure. The interrelation between the feminine adolescent propensity toward deviant behavior and the attitude on the part of the mothers is presented in table 2.

Table 2. The relation between the feminine adolescent propensity toward deviant behavior and the attitude on the part of the mothers (Pearson correlation coefficient)

	Positive interest	Directivity	Hostility	Autonomy	Inconsistency	Intimacy	Criticism
The propensity toward breaking the rules and regulations	-0.367	0.406	0.480*	-0.340	0.086	-0.446*	0.416
The propensity toward addictive behavior	-0.121	0.077	0.411	-0.174	0.359	-0.282	0.141
The propensity toward self-harming and self-destructive behavior	0.072	-0.297	-0.262	-0.244	-0.137	0.177	-0.026
The propensity toward aggression and violence	-0.331	0.080	0.192	-0.484*	0.017	-0.273	0.317
The emotional reactions control	-0.194	0.213	0.204	-0.508*	-0.248	-0.209	0.405
The propensity toward delinquent behavior	0.218	-0.115	-0.014	-0.069	0.297	0.120	-0.024

**. Correlation is significant at the level 0.01 (bilateral).

*. Correlation is significant at the level 0.05 (bilateral).

In the correlation analysis it was ascertained that the feminine propensity toward breaking rules and regulations has a positive relationship of hostility from the mother (r=to 0.480 at p≤ 0.05) and negative − of intimacy (r=-0.446 at p≤ 0. 05). The propensity toward aggression and violence and the control of emotional reactions have feedback of autonomy from the mother (r=-0.484 at p≤ 0.05 and r=-0.508 at p≤ 0.05, respectively).

The relation between the feminine adolescent propensity toward deviant behavior and the attitude on the part of the fathers is presented in table 3.

Table 3. The relation between the feminine adolescent propensity toward deviant behavior and the attitude on the part of the fathers (Pearson correlation coefficient)

	Positive interest	Directivity	Hostility	Autonomy	Inconsistency	Intimacy	Criticism
The propensity toward breaking the rules and regulations	0.434*	0.074	-0.364	0.299	0.221	0.426*	-0.225
The propensity toward addictive behavior	0.201	0.056	-0.013	0.256	0.251	0.125	-0.119
The propensity toward self-harming and self-destructive behavior	0.385	0.111	-0.390	-0.268	-0.189	0.410	0.349
The propensity toward aggression and violence	0.313	0.020	-0.281	-0.162	-0.004	0.316	0.148
The motional reactions control	0.300	-0.125	-0.401	-0.021	0.278	0.365	-0.150
The propensity toward delinquent behavior	0.088	0.106	0.290	-0.164	0.043	-0.084	0.264

**. Correlation is significant at the level 0.01 (bilateral).
*. Correlation is significant at the level 0.05 (bilateral).

It was ascertained that the feminine adolescent propensity toward breaking the rules and regulations is positively related to the interest on the part of the father (r=0.434 at p≤ 0.05) and the intimacy (r=0.426 at p≤ 0.05).

3.3 The relation between the propensity toward deviant behavior among modern teenagers and the family socialization features among the masculine adolescents

The relation between the masculine adolescent propensity toward deviant behavior and the attitude on the part of the mothers is presented in table 4.

Table 4. The relation between the masculine adolescent propensity toward deviant behavior and the attitude on the part of the mothers (Pearson correlation coefficient)

	Positive interest	Directivity	Hostility	Autonomy	Inconsistency	Intimacy	Criticism
The propensity toward breaking the rules and regulations	-0.187	0.320	0.433*	-0.291	-0.029	-0.320	0.337
The propensity toward addictive behavior	-0.099	0.213	0.268	-0.167	-0.456*	-0.189	0.211
The propensity toward self-harming and self-destructive behavior	-0.323	-0.202	0.045	-0.315	0.017	-0.198	0.048
The propensity toward aggression and violence	-0.731**	0.231	0.339	-0.591	-0.086	-0.566*	0.442*
The emotional reactions control	-0.565	0.211	0.593*	-0.372	0.073	-0.606*	0.317
The propensity toward delinquent behavior	0.098	0.064	-0.327	-0.031	0.606*	0.219	0.053

**. Correlation is significant at the level 0.01 (bilateral).
*. Correlation is significant at the level 0.05 (bilateral).

The masculine adolescent propensity toward breaking rules and regulations has a direct relation with hostility from the mother (r=0.433 at p≤ 0.05). The propensity toward aggression and violence has feedback with a positive interest (r=-0.731 at p≤ 0.01) and intimacy (r=-0.566 at p≤ 0.05), and also a direct relation with criticism (r=0.442 at p≤ 0. 05). The control of emotional reactions has a direct relation with hostility (r=0.593 at p≤ 0. 05), and the inverse relation – with the intimacy (r=-0.606 at p≤ 0.05). The propensity toward delinquent behavior has a direct relation with inconsistency on the part of the mother (r=0.606 at p≤ 0. 05).

The relation between the masculine adolescent propensity toward deviant behavior and the attitude on the part of the fathers is presented in table 5.

Table 5. The relation between the masculine adolescent propensity toward deviant behavior and the attitude on the part of the fathers (Pearson correlation coefficient)

	Positive interest	Directivity	Hostility	Autonomy	Inconsistency	Intimacy	Criticism
The propensity toward breaking the rules and regulations	0.035	-0.354	-0.109	-0.060	0.507*	0.069	-0.425
The propensity toward addictive behavior	0.082	-0.266	-0.134	-0.288	0.372	0.108	-0.090
The propensity toward self-harming and self-destructive behavior	0.290	0.455*	-0.486*	-0.043	0.680**	0.386	0.660**
The propensity toward aggression and violence	0.227	0.231	-0.425	-0.086	-0.427	0.321	0.396
The emotional reactions control	0.134	0.208	-0.398	0.162	-0.252	0.253	0.130
The propensity toward delinquent behavior	0.279	0.099	-0.179	-0.383	-0.182	0.246	0.497*

**. Correlation is significant at the level 0.01 (bilateral).
*. Correlation is significant at the level 0.05 (bilateral).

The masculine adolescent propensity toward breaking rules and regulations is directly related to the inconsistency on the part of the father (r=0.507 at p = ≤ 0.05), the propensity toward self-harming and self-destructive behavior has a direct relation with directivity (r=0.455 at p≤ 0.05), criticism (r=0.660 at p≤ 0.05) and inconsistency (r=0.680 at p≤ 0.05).

4. Discussions

In the empirical research it was ascertained that masculine adolescents have a lower value of their own life, a higher risk appetite, and a more urgent need for thrills. They have a stronger aggressive orientation in relationships with other people, a tendency to solve problems by violence, a tendency to use humiliation of a communication partner as a means to stabilize their self-esteem.

The obtained data suggest that the feminine adolescent propensity toward denial of the existing rules and regulations, the nonconformist tendencies, negativism are worsened by emotional coldness, suspicion on their mothers' side, and are attenuated by the mothers' psychological acceptance of their children, as well as by their friendly attitude. The strengthening of these tendencies is influenced by a warm, trustful relationship and openness on the part of the father. Aggressive orientation of the person in a relationship with others, the feminine adolescent propensity toward solving problems by violence and the inability to control their emotions, the propensity toward realizing negative emotions directly in behavior, without delay, the lack of volitional control of their needs and sensual inclinations are related to low independence of the mother from the child, from his needs and interests, their low indulgence and high exactingness.

The results of the research indicate that the positive interest on the part of the masculine adolescents' fathers does not affect the propensity toward deviant behavior. The propensities toward denial of the existing rules and regulations, non-conformist tendencies, negativism are worsened by the unpredictability of the reactions on the part of the father toward the adolescent behavior, by the inability to foresee them. The readiness to realize various forms of the masculine adolescent autoaggressive behavior is increased by unpredictable, critical and authoritarian attitude of the father, and decreases with the father's desire to raise his child in accordance with the existing rules and regulations, and with the ideas about what a perfect child should be. The propensity toward illegal behavior is increased by excessive severity, injustice on the part of the father.

5. Conclusion

The article presents the results of the empirical research, intended to study the relation between the family socialization features and the propensity toward adolescent deviant behavior, taking into account their gender identity. The conducted research made it possible to draw conclusions about the fact that the masculine adolescent propensity toward deviant behavior is more pronounced than that of the feminine one. The feminine adolescent propensity formation toward deviant behavior is more affected by the negative manifestations of the attitude from the mother than from the father. The masculine adolescent propensity formation toward deviant behavior is approximately in the same way affected by destructive attitude both on the mothers' and the fathers' sides. In the case of psychological acceptance and closeness on the part of the parents the teenagers' propensities towards deviant behaviors decrease.

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Approaches to Educational Programs Modeling, Design and Implementation for Continuous Training of Various Experts

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Abstract

This article describes an approach to model, construct and implement multilevel system of continuous educational programs. The training content is determined by the system of generalized professional competencies. The educational levels correspond to the competency levels. The multilevel system includes five educational levels: primary professional training programs (perhaps at high school), secondary vocational programs (which are transformed into applied bachelor programs), bachelor programs, master programs, and postgraduate programs. This multi-level educational system may be implemented effectively using the fractal model of regional educational structures. The fractal model is based on self-similarity, self-organization and self-development. This implemented educational system makes possible to use individual learning tracks both in one educational program and during the transition between educational levels.

Keywords: *professional educational programs, system of professional competencies, fractal model, individual learning tracks.*

1. Introduction

Modern production constantly faces shortage of highly qualified personnel since graduates' training level often does not meet employers' requirements. This is largely determined by working conditions and technologies upgrading intensity, constant changes in professions nomenclature and professional competences content. As a rule, a set of competencies required for a particular job in industry does not fit entirely into any of educational program. The most demanded professionals are those who have wide competencies range and are equally competent in various production areas, they are able to quickly train for a new profession and constantly improve their competence.

To solve training system problems, it is crucial to make fundamental changes in training structure content to ensure educational system flexibility, the possibility to responding in advance to employers and specific students' needs. Professional training in Russia is organized currently in accordance with federal educational standards in vocational education field and higher education fields. However, educational standards do not include stringent requirements for the

teaching content in educational programs providing a significant variable part that gives the flexibility to change training content. However, educational standards and training programs at various levels are often poorly coordinated; they are based on incompatible competence systems that lead to problems with ensuring the continuity of educational programs at different levels, the implementation of training opportunities in a shorter time and support to individual students' educational tracks.

An approach to modeling and design proposed in this paper in order to form educational programs of vocational education is based on the development of a unified system of professional competencies.

The scientific problem, which has determined the research direction, consists of the need to systematize professional competencies and their integration into the generics that will establish approaches to modeling and design of educational programs at different vocational education levels, having continuity, variability, as well as consistency with professional standards at relevant economy industries characteristics. Domestic and foreign professional standards and qualification systems analysis showed that they could not be used directly for the educational content development, because, skills and competence are not integrated as qualifying knowledge characteristics. There is a need to model professional competences structure, the allocation of levels of competence, developing each profession's qualifications based on an adequate level of competence definition.

2. Methodological Framework

2.1 Competence-based approach

Competence approach is fundamental to our study since it is based on competence and expert knowledge concepts (Hall, 1976). Competence approach defines learning outcomes in terms of professional competencies. Competence as a complex notion consists of various meaningful components: knowledge, skills, values, experience (Hobart, 1995). Substantial competence components are usually grouped into several hierarchical levels, determining relevant activities independence degree and responsibility.

There are different approaches to define competence level. These levels often correspond to the learning levels outcomes within Bloom's taxonomy framework (Bloom, 1956). In previous publications we proposed the competences structure for innovative industries, based on staff' professional activities results (Belonovskaya, 2012).

Comparing activities outcomes and education levels it's possible to distinguish five competency levels integrated into each other as the complexity increases, it grows by functionality, complexity and independence of result achievement.

The first level - preparedness to practical action based on a typical algorithm. This is considered to be professional - personal quality is ensured in the short initial training and involves a detailed description of the employee's simple labor actions.

The second level - preparedness for self-regulated responsible actions involves extensive use of skills in this competency in practice, basically at standard situations, in accordance with existing regulations, providing liability for executive actions and limited autonomy in decision-making.

The third level - preparedness to self-applied practice in terms of innovation, involves activities related to the solution of problems in unusual situations, control and subordinates actions correction, provides liability for performers group actions, sufficient autonomy in decision-making. Innovative activities can be assumed at this due to the need to introduce new technologies and processes.

The fourth level - preparedness to design and construct, develop and implement innovative products, technologies and services, involves solving problems and applications, methodology knowledge and general principles of decision-making in the innovation sector, provides responsibility for the actions on collective level, independence in decision-making, initiative, innovation and efficiency drive.

The fifth level - preparedness to research and forecast in the field of innovation, involves activities in methodology field and the development of general principles of this competence, fundamental decisions affecting organization's overall activities, expertise activities and products, managing a group of workers, provides responsibility for collective' actions and high autonomy in decision-making.

2.2 Methods of competences formation

We have developed a method of generalized competence system which includes preliminary list of competencies and their content based on professional and educational standards, defines subjects who update generic competences

description versions, and interact with subjects to clarify the role and resources of each to form generalized competencies system survey, to clarify the structure and substantive content of generalized competences, subjects representations correlation analysis and generalized competencies content correction.

The aim to attribute professional standard units (knowledge and skills), the results of which serve to educational programs, to specific professional competencies, as well as to their specific levels, causes considerable difficulties. At the initial stage of competences structure formation we propose to use statistical methods related to cluster analysis. The initial clusters allocation, which are future competencies basis, can be made based on expert contents estimations within professional standards. For clusterization k-average method can be used. Elements having only one nonzero component by all experts' opinion are selected as cluster centers (obviously specified within a certain competence in advance).

2.3 Technique to educational content design

Educational programs content is based on a given level of specialist professional competence. Each level corresponds to a certain professional education competence level: initial vocational training, vocational education, undergraduate, graduate, post-graduate courses. Training profiles at every level of professional education correspond to the main occupations at innovative industries.

It is necessary for each economic sector to develop competences content and define a relevant professions matrix and certain levels of professional technological competencies. The matrix identifies a set of competencies that should be formed for a particular profile by educational program. Based on this set of competencies, it is possible to determine the variable part of professional discipline cycle of basic educational program.

2.4 Fractal model of educational programs

Continuous multi-leveled effective implementation training is possible when coordinating educational programs at various levels; it is possible when using a fractal model of the university complex. The term "fractal" was introduced in the mid 70-ies of XX century by Benoit Mandelbrot to describe self-similar geometric shapes (Mandelbrot, 1983). Self-similarity means that any subsystem of fractal system follow the configuration of the whole system. Fragment of a fractal-like holistic form is reproduced at each successive level on a smaller scale, forming a kind of "nested" structure. Fractal models are used in teaching because they allow describing a complex of educational systems development.

Under the university campus structure, we mean a set of relations and educational institutions and structures to implement continuing professional education programs. The main components that characterize the university as educational system, are university', branch', college' educational environment necessary for their educational, scientific and industrial base, information technology facilities, social and cultural destinations near schools or educational units (conventionally called as campuses).

The basic model's element or generator, if we use the terminology of fractals theory, we will consider interaction of the university and its divisions. Each educational unit, in turn, has self-similarity characteristics, and therefore, can be considered as fractals.

The University campus provides various opportunities: it gives students multileveled education (secondary, higher and postgraduate); provides favorable conditions for commercialization of science-technological development (knowledge transfer); forms a unified methodology for vocational education; reveals students' individual creativity abilities. In this respect, University campus should include a variety of educational institutions with different location and profile. The distributed structure arising from these regulations forms a branch network.

Fractal structure advantages are stipulated by various education levels in linear fractals "college - university" and "college - branch"; by variability and adaptability of branched fractal "leading university - branches"; by focus on subordinate fractals self-development (i.e. branches).

The most complete consistency among various educational programs is provided by fractal model, which allows support of individual educational students' tracks.

2.5 Students' individual educational tracks modeling

Each professional education program includes both compulsory courses, modules, and elective courses. Each student creates his own educational track, choosing courses at the beginning of school year or semester. Often courses are chosen unconsciously, without taking into account future graduate qualification requirements.

We have developed effective methods for students' individual educational tracks design and maintenance at

regional multi-level vocational education system, providing a conscious achievement of learning outcomes in the form of competencies demand on the labor market (Shukhman, 2013). In this approach, a two level when selecting path. The first one involves selection of training areas and educational program profile at a certain level of professional education, and the second determines subjects' choice in variable educational program part.

As a basis for educational tracks design, we used education content model based on the above-described system of generalized professional competencies that define the learning outcomes at all training levels.

Education content model includes standards, generalized professional competencies at various levels, disciplines content in the form of didactic units, as well as the interrelation of disciplines and competencies.

3. Results

3.1 Development of professional competencies content in IT industry.

The elaborated method was used developing competences' structure and content for IT industry. Preliminary generalized professional competencies list and content are based on IT industry professional standards. Professional standards in Russia include job descriptions and their respective qualification levels, types of employment and job functions that require specific knowledge and skills. After core competencies, separation it was noted that learning outcomes were unevenly distributed across clusters. Thus, the most overloaded clusters proved to be "software development" and "IT Management". As a result, each of these clusters has been divided into several competencies: in the first case, the object of dividing became the element relevance to one of the software development stages, the second – management object.

Thus, competences are defined as: "Project Management", "Human Resources", "Interaction with users and customers", "Business processes analysis and modeling", "Resource Management" at the aggregated group competencies "IT management" and ""Software requirements collection and analysis", "Software design ", "Development code", "Testing and debugging software", "Software maintenance" competences at the aggregated group competencies "Software development ".

At further steps, content competencies were clarified and corrected based on educational process opinion analysis: students, teachers and employers. Developed generalized competences system for IT industry allows creating educational programs continuity for different levels of professional education.

3.2 Educational training programs design in using fractal model within continuing education system

Based on standards analysis of general education and basic vocational education specialized educational programs with information-technological profile have been developed for high school training in IT sphere (Shukhman, 2012).

Theoretical part of training is realized using core disciplines (mathematics, computer science and physics) and elective in curriculum. Practical part of training (educational and industrial practice) is carried out in the framework of extra-curricular project, scientific, educational and public benefit seniors. Training results are defined in the form of common cultural and professional competences. Only first two initial levels of each competency at high school are possible to be formed.

Training programs for such professions as "Digital resources processing master" and "Computer networks adjuster" are developed. The elaborated programs correspond to the first qualification level on the relevant professions in IT industry: "Information resources specialist" and "System Administrator". These programs have been tested at schools and institutions of further education of Orenburg region in cooperation with Orenburg State University.

The developed method has been applied at the Orenburg State University to construct a multi-level training system in IT sphere. The developed model for Bachelor degree education allows train specialists within the six most popular professions in IT: "Information resources specialist," "System administrator", "Programmer", "Database Administrator", "Information resources specialist", "Systems Analyst". Correspondence between professional competence and qualification levels in each profession to structure training disciplines are encouraged to use the block-modular approach. To develop a modular training structure the blocks correspond to the basic professional competences (or aggregated groups of competences). Each unit contains separate training modules corresponding to specific topics selected for some competence on the basis of their complex internal structure.

Each module contains theoretical and practical part, which correspond to specific tasks within educational and practice internship. To develop training modules content we have proposed an algorithm based on the professional competencies content, the development technique of basic educational program is also justified.

An integrated competence system for educational programs at all training levels leads to the fact that programs

structure at each level become similar. This training system can be implemented efficiently using a fractal education model. Orenburg State University structure can be described as a fractal model since its units (branches, departments, and colleges) have a structure similar to the whole University.

The University (OSU) has five branches in Orenburg region and the Republic of Bashkortostan and consists of five colleges. Contingent of students at OSU with branches and colleges is more than 30 thousand people (including 18 000 people - in the main high school). The structure of main campus includes three colleges operating in the city of Orenburg: Electronics and Business College, Industrial and Teaching College, Humanities College of Law. Each has a well-developed material and technical base which belongs to operational management of OSU.

OSU branches structure have fractal characteristics: Buzuluk Humanities and Technology Institute has Buzuluksk Industry and Transport College in its structure. Orsk Humanitarian-Technical Institute, the largest branch school in Orenburg region, collaborates with Orsk Polytechnic College that is a branch of OSU as well. These schools implement secondary and higher vocational education continuity using material and technical base under the OSU operational management. Kumertau OSU branch, located in the Republic of Bashkortostan, originally has been developed on the basis of Kumertau mountain college, but recently has created a developed material and technical base, located in the operational management of OSU.

3.3 Effective modeling of students individual educational tracks

Petri nets (Petri nets) model has been used as a basis for individual educational track modeling (Shukhman, 2013). Positions (places) in Petri nets are learning outcomes (units of competency), transitions in this network are separate disciplines, modules, courses of educational programs in the regional education system.

Arcs in Petri nets are defined based on relationships between learning outcomes and courses: To complete the course requires initial knowledge level, skills, after completing the course one will reach a certain level of knowledge and skills. The level of students' competence is given in the form of marking Petri net, the learning process is aimed to change labeling through a sequence of transitions in the network. Additional top points are added aggregating disciplines, as well as in situations where competence is formed by a set of disciplines.

The search for the best educational tracks is to find the optimal path in the accessibility system within Petri nets. We propose a heuristic algorithm to design a track as a path in the status graph at Petri nets. The algorithm had been optimized in comparison with the full accessibility tree. The analysis of the algorithm correctness performance had been conducted; we obtained all necessary and sufficient conditions for the existence of individual educational tracks, and proposed methods for its verification.

We have revised two different optimization criterion of individual educational tracks: the first - to achieve the highest competence level, expressed in the generated knowledge and skills volume, including compulsory learning outcome under given constraints; the second - to minimize total complexity of disciplines necessary for the formation of mandatory learning outcomes. In the first case, the optimization problem is to modify the rucksack problem - NP-complete problem on rucksack with the union of sets. The approximate algorithm has quadratic complexity, taking into account disciplines relationship of educational program based on an algorithm (Arulsevan, 2014). In the second case, the optimization problem is reduced to an NP-complete problem of minimal covering.

Based on the proposed methodology a distributed information system has been designed in the form of internet resource available for students and employers.

4. Discussions

Using the fractal model contributes to:

- economic efficiency due to territorial concentration of various educational resources, applying after testing in other fractals schemes, identity management processes fractals, the ability to automate the universal management procedures and document flow;
- self-organization: in branches that are organized as a head university, as they are developing, faculties, departments, remote information technology centers, additional education systems will arise, forming their own material and technical base and research perspective;
- self-recovery: in problem situations educational activities at one of the institutions can provide resource support or can temporary accept students for education;
- self-development: the interaction of colleges and universities within each fractal allows to raise the education

level of graduates, educational and scientific qualifications of teachers, to develop scientific and educational and informational environment;

- accessibility and openness of continuing education within the region.

Flexibility and customization of program content is achieved by introducing students' individual educational tracks as in one of the educational programs and the educational system as a whole. For optimal design and maintenance of students' individual educational tracks can effectively use the information system based on the model of educational content and the learning process in the form of Petri nets.

The developed system will enable student to make mindful choices within study areas, disciplines profiles within the educational profile, additional educational programs, taking into account existing set of competencies and the specified learning outcomes.

The developed system allows the employer select graduates with necessary competences based on educational programs analysis, defining optimal ways to retrain personnel.

5. Conclusion

Proposed approaches to multi-level continuous training design and modeling based on a unified system of professional competencies can design continuity of educational programs for professional education' different level. This ensures consistency of programs at various levels, maximum skill requirements matching for employers and graduates.

Proposed models and techniques can be used when developing continuous education programs in organizations that train IT professionals, which will improve the quality of training, demand for graduates in labor market.

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Assessment of Efficiency of Capital Investment Project Implementation of Resource-saving Technology for the Real Sector of the Economy in Tatarstan Republic

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Abstract

The timeliness of the problem under study stems from the fact that realization of resource-saving technologies requires in its turn the implementation of innovative technologies in different branches of industry of Tatarstan Republic. The object of an article includes the statement of need of high-impact projects implementation in the area of field facilities construction by making use of pipes with cathodic protection, which is verified by accounting results of economic efficiency.The principle method of investigation of this problem is a method of assessment of efficiency of capital investment project with the use of discounted methods of calculation that will allow take into account asynchronical cash inflow and outflow of implementing project. The results of the investigation that is focused on assessment of efficiency of plant establishment for the production of resource-saving technologies in the oil industry confirm practicability of such project investment. The plan that allows realizing the pipes with cathodic protection guarantee investors and project parties' acceptable performance measurements. Information in article could be useful in realization of similar projects; they include the methodological tools for project evaluation and accounting results that confirm the conclusions of the authors.

Keywords: *innovation technologies, efficient use of resources, investments, efficiency of investment project*

1. Introduction

1.1 The Timeliness of the Problem

The goal of investment in advanced society is economical advance, presence of which allow increase the cost of national production investment capital (Gukova, 2006). Implementation of innovative products that meet the requirements of the region form investment demands.

It is necessary to notice that space planning of oil fields require usage of large amount of oil equipment. Crude-oil production performed with the use of reservoir pressure maintenance system (RPMS) could be realized with formidable pipeline basis for wastewater injection, reservoir services, pumps and other at hand. In consideration of significance and expanse of pipeline transportation system in republic, which used in RT oil companies and it is susceptibility to corrosion because of corrosive wastewaters injection, flowline with cathodic protection has particular actuality. In republic, which is the leader among other regions in field facilities installation with the use of anti-corrosive measures of various kinds, nonetheless remains a need in further development and use of pipes with cathodic protection in oil facilities.

1.2 Explore Importance of the Problem

Modern stage of development of fuel and energy complex in Russia and its regions characterized by high amortization of fixed capital stock (Kondratiev, 2005).

Author's experience in oil industry suggests that for the last decades operating life of steel pipes decreased almost in all areas of their application. This based, from one side, on sharp decrease of metal's corrosion resistance and, from the other side, on an increase of environment's corrosive activity wherein pipes are operated. Flowlines that do not have internal coat, in which aggressive substances being transported, has operating life from one month to two years that does not allow them to "serve" it's serviceable life. For the last decades has been noted the decrease of operating life in almost all spheres of their application that is based, from one side, on sharp decrease of metal's corrosion resistance and, from the other side, on an increase of environment's corrosive activity wherein pipes are operated. This results in substantial casualties from underamortization of these oil-field facilities, which lead to substantial losses in enterprises that implement pipes without cathodic protection.

Within this framework, we consider relevant the implementation of different anti-corrosive internal and external coats in steel pipes and flowlines constituent elements establishing for that purpose plant (production facility) for the production of pipes.

1.3 Subject Matter of Capital Investment Project.

Capital investment project under discussion suggest the establishment of new plant for the application of internal and external anti-corrosive coat in steel pipes.

Established production facility suggests the organization of innovative manufacture for the application of internal and external anti-corrosive coat in steel pipes for the purpose of optimizing the pipe line service life, for the losses reduction due to worn-out state of flow lines in Russia and neighboring countries and also for the purpose of improvement of the effectiveness of newly introduced pipe lines usage. Despite the fact that large number of enterprises that issue equipment with anti-corrosive protection has been established in Tatarstan, build up production use unique German and Italian equipment for the application of internal and external coat in releasing pipes, which has no analogues in Russian Federation.

Making pipes with advanced reliability will allow providing both environmental integrity and safety of the flowlines itself, which work in aggressive environment, therefore increase its service life. Factors that determine possibility and necessity of realization of project on production facility for steel pipes insulating coating establishment are:

- the gain (accession) in production of pipes with anti-corrosive protection;
- objectively conditional high deprecation of pipelines and necessity of its replacement including also those pipelines that were built in republic in the 90s;
- the absence of similar manufactures in the territory of the Russia and neighboring countries;
- more efficient use of available pipelines in the territory of the Russian Federation;
- service life of steel pipes with cathodic protection exceed service life of pipes without protection fivefold and more;
- using pipes with internal polymeric coating not only provides effective protection from corrosion, but allow to increase flow capacity (on 5-15% and more), and also significantly reduce the amount of sedimentation in its internal surface;
- flowlines with internal polymeric coating need cleanout less often and retain original capacity during long period of operation.

1.4 Status of a Problem

Aspects of corrosion prevention of pipes are under consideration in RT from the beginning of 1990s. Projects implementation on adaption of pipes with corrosion prevention gave an option in republic in due time of escaping environmental catastrophe. Works on this subject published in proceedings of such scientists and practitioners in Tatarstan as Zagirov M.M., Takhautdinov Sh.F. (Takhautdinov, 1998), (Zagirov, 1998). Theoretical aspects of justification of investment projects efficiency presented in proceedings of Behrens (Behrens, 1995), Lipsitz (Lipsitz, 2011) and others. Economic aspects of expediency evaluation of resource – saving manufactures development published in proceedings of Khasanova A.Sh. (Khasanova, 2014), Kvon G.M. (Kvon, 2005, 2009, 2014).

2. Materials and Methods

2.1 Research Objectives.

In the course of research following problems were determined:

1) assortment and substantiation of benchmark data for the calculation of the project;
2) carrying-out of an analysis of similar manufactures implementation;
3) justification of methodological framework for the cost-effectiveness analysis of a project;
4) carrying out a cost-effectiveness analysis of investment project of investigational and observational group in the process of tourism activities;
5) input-output analysis of assessment of efficiency of resource saving manufacture establishment.

2.2 Theoretic and Empiric Research Methods.

In the course of work, different methods used:

- methods of investment analysis, which based on discounting conception,
- quantitative and qualitative methods of risk assessment,
- expert evaluation method,
- analysis and synthesis method,
- statistical methods.

2.3 Estimation Criterions

During assessment of efficiency of capital investment project that focused on increased investment appeal of a company there are certain estimation criterions in terms of which managerial decisions on accepting (or denial) of project are made. During assessment of projects according to the Methodological Recommendations on Estimation of Project's Efficiency (Methodological Recommendations, 2010) and Guidance on Investment Assessment of Efficiency (Behrens, 1995) could be used two groups of methods: simple and complex.

To the simple methods that do not use discounting conception could be related simple pay-back time and simple rate of profit. These activities are very convenient in the calculation; however they do not take into account asynchronicity of money flows and runoffs (Askinadze, 2010).

To the complex methods that take into account irregularity of moneys received and runoffs, based on discounting conception (with an allowance for risk and uncertainties) relate:

- NPV – net present value;
- PI – profitability index;
- IRR – internal rate of return;
- DPP – discounted payback period or payback period.

Calculation and methodological aspects of analysis of general indicators of return on investments presented in Table 1.

Table 1. Settlement and Methodological Aspects of Analysis of Generalized Index of Effectiveness of Long-range Investments

Indicator name	Calculation Methodology	Substantiation
1. Net present value (NPV) – difference between aggregate amount of discounted cash flow for the whole period of IP realization and primary amount of investment expenditures	*NPV = PV – Io* or $NPV = \sum_{t=1}^{n} \frac{CF_t}{(1+r)^t} - I_0$	- if NPV > 0, project will be accepted, if NPV <0, project will be discarded, - if resented projects have alternative than project with highest NPV should be accepted
2. Internal rate of return (IRR)– minimum value of profitability wherein investments will be compensated in planned period of project's implementation	This index is calculated by the following equation: $NPV = -I_0 + \sum_{t=1}^{n} \frac{CF_t}{(1+IRR)^t} = 0$	If internal revenue rate exceed the price of vested capital, company should accept the project otherwise it should be discarded.
3. Pay-back period (PP) determine space of time which is needed for refunding of investment expenditures from net cash flow.	If the amount of cash flow is constant in every period of investment project realization, than calculation formula of PB could be presented as follows:	- projects with payback period less than standard laps of time specified by investors (or business entity itself) are accepted, with bigger payback period are discarded;

	$PP = \frac{I_0}{CF}$. If CF nonequivalent against each other in different periods of time than pay-back period should be determined from the formula: $d = \frac{(I_0 - \lfloor CF_1 + CF_2 + ... + CF_j \rfloor)}{CF_{j+1}}$	- from several mutually exclusive projects should be accepted project with lesser payback period
4. Profitability index (PI) is equal to the present value of cash flow divided on the amount of investment expenditures	$PI = \frac{PV}{I_0}$	For as long as PI greater than unity, project could be accepted for the implementation

In compilation of a table were used following notational conventions:

PV – present value of cash flows: $PV = \sum_{t=1}^{n} \frac{CF_t}{(1+r)^t}$

Io – initial investment costs;

CFt - cash flow from an investment project in year t;

n - number of years during which the investment project is realized;

r - discount rate of the project.

Particular importance has definition of discount rate (Kiseleva, 2013). From a mathematical standpoint discount rate is a rate per cent, which is used for reevaluation of future income flow into a single value of present (today's) cost. This rate per cent is the basis for determination of market capitalization. In economic terms, discount rate appears as a rate of return for invested capital required by investors in investment projects with a comparable level of risk. Or this is a required rate of return on available alternative choice of investment with a comparable level of risk by the date of estimating (Yacupova, 2010).

Discount rate, or capital dotation costs, should be calculated in compliance with three factors:

1. The fact that many enterprises has different sources of raised capital that require different levels of compensation.
2. Necessity of taking into account for investors the value of money in time.
3. Risk factors or degree of possibility of getting expected income in future.

Methods for determining of cash flow discount rate are different but the most commonly encountered from them are:

- methodology for ownership capital – capital asset pricing model (CAPM) and build-up method;
- methodology for invested capital – weighted average cost capital model (WACC), where as balance appear parts of borrowed and internal resources within capital.

Assessment of efficiency of project by means of abovementioned factors allow project's organizer to make right investment decision.

3. Results

During estimation of investment expenditures was discovered that realization of this capital investment project on the establishment of plant for the application of coating in steel pipes require following investment expenditures (in $ thousands)

overall: 11530, including:

Manufacturing equipment including installation	9 779
Pre-production expenses	750
Increment of operating capital	1 002

The amount of capital assets is based on purchase costs of production equipment (main and secondary), license, transportations, installation costs, construction of roads and communication lines, product certification and other.

It is necessary to point out that project's organizer does not have the whole amount of money, it come out at $ 6572 thous., which is 57 % of the cost of entire project. Necessary amount of attraction of credit resources to be $ 4958 thous., which is 43 % of the cost of entire business project on factory establishment.

To determine indexes of efficiency of capital investment project "Establishment of the Plant for the Application of Anti-corrosive Coating in Steel Pipes" we must perform settlements of reviewed indexes PI, NPV, DPP and IRR.

Net present value or NPV is defined in such a manner: at the first stage we should calculate net cash flow.Next we should calculate cash flow exclusively accumulative (positive accumulative cash flow could be evidenced). Up to that moment this index was negative. Afterwards net cash flow should be discounted.

Next index of efficiency of capital investment project is discounted profitability index (payability) – PI

This index demonstrate how profitable is capital investment project or how much profit could be gained from realizing the project on 1 ruble of invested in this project assets.

Index that distinguish cumulative rate of return of invested assets in project, which is generated for specific project, is internal rate of return (IRR). More fast and accurate IRR could be determined with the help of financial calculator or computer using EXCEL.

The last index of efficiency of capital investment project "Establishment of the Plant for the Application of Anti-corrosive Coating in Steel Pipes" is payback period.

The results of calculation of the project, made with due account for UNIDO procedure (Guidance, 1995), and Methodological Recommendations (Methodological Recommendations, 2010):

Net present value (NPV), in $ thousands - 24 303
Internal rate of return (IRR), % - 45,6%
Простой срок окупаемости проект (PP), year - 3,4
Profitability index (PI), index. - 3,1
Detailed index's calculation is demonstrated in Table 2.

Table 2. Results of an Investment Project Realization

(in $ thousands)

Indices	Years of the project (accounting period)							In total
	1	2	3	4	5	6	7	
Investment activity	11530							11530,2
Manufacturing equipment including installation	9779							
Pre-production expenses	750							
Increment of operating capital	1002							
Operating activity								
Operating income	0	0	49144	49144	49144	49144	49144	245721
Operating costs	179	224	36478	36478	36478	36478	36478	182791
Amortization	0	0	556	556	556	556	556	2779
Taxes and interest on credit	1,17	301	1011	940	869	797	726	4646
The balance sheet profit as restated	-180	-526	11100	11171	11242	11313	11384	55505
Adjustment of taxable profit	0	-180	-706	0	0	0	0	-886
Taxable profit	0	0	10394	11171	11242	11313	11384	55505
Tax on profits	0	0	2079	2234	2248	2263	2277	11101
Interest on loans is not included in the cost	0	300	0	0	0	0	0	300
Net income (profit)	-180	-226	8315	8937	8994	9051	9108	43999
Net cash flow	-180	-226	8871	9493	9549	9606	9663	46777
	Calculation of project performance indicators							
Investment activity outcome (result)	-11530,2							-11 530,2
Operating activity outcome (result)	-180	-226	8 871	9 493	9 549	9 606	9 663	46 777
Real money flow	-11710	-226	8 871	9 493	9 549	9 606	9 663	35 247
The same, but on an accrual basis	-11710	-11 936	-3065	6 428	15 977	25 584	35 247	
Discounted cash flows of real money	-11710	-10754	-2489	4 699	10 529	15 171	18 857	24 303
	Performance indicators project							
Net present value (NPV), (in $ thousands								**24 303**
Internal rate of return (IRR), %								**45,6%**
Payback period (PP), year								**3,4**
Profitability index (PI), index								**3,1**

To further define the practicability of realization of capital investment project we need to determine risks of a project that will help to make final conclusions on extent of its effectiveness (Abramov, 2012), Khamidullin (2012).

In the frame of investigated capital investment project made the break-even analysis of manufacture, namely was calculated earnings threshold.

Calculation of breakeven point (earnings threshold) allows seeing to what extent could come down earnings. In this point enterprise do not have earnings (profit is equal to 0), but also do not have losses. Calculation was made on the basis of marginal analysis. Constant decrease tendency of considered project performance figure admitted as positive. According to the performed calculations margin of safety of actual earnings of the project is 75,5% in the third year of production, 76,1% - 4th year, 76,6% - 5th year and 77% - in the 7th year of project's realization. Increase of safety factor over the period under review recognized as a positive point.

Calculation of an earnings threshold presented in Table 3.

Table 3. Indexes of the Liminal Operating Proficiency of the Production

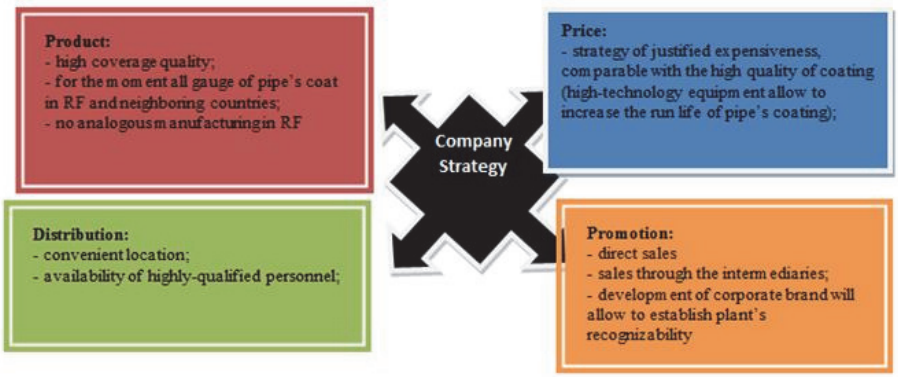
(in $ thousands)

Indices	Years of the project (accounting period)						
	1	2	3	4	5	6	7
Variable costs	61	107	36257	36413	36427	36441	36455
Fixed costs	117	417	3155	3095	3035	2975	2915
Marginal profit			12887	12732	12717	12703	12689
Breakeven point (earnings threshold)			12032	11947	11728	11509	11290

4. Discussion

The valid point is the question of promotion of plant's production for the purpose of realization of its investment strategy (Lakhmetkina, 2012).

In the matters of the beginning of capital investment, project realization main efforts of business in marketing policy must be focused on optimization of transportation for different kinds of customers. It is necessary to describe and to prove to the potential customers the ability to provide effective and minimal at the price delivery of the goods planned to be produced, to facilitate turn out products with necessary certificates and to achieve during production quality of production corresponding to these documents. In other words, price, assortment and satisfaction of market's wants of the goods planned to be produced mast guarantee customers economic efficiency of cooperation with the factory. As noted above, production is innovative and in such planned assortment, no one has similar production. Company's strategy for the next 5-10 years is marketing development in Russia and orientation on neighboring countries and beyond. Marketing strategy of capital investment project realization is presented on pic.1.



Pic. 1. Competitive Marketing Strategy of a Project of the Organization of Innovative Manufacture for the Application of Anti-corrosive Coat

The main factors of competitiveness of capital investment project are:

1) Procured equipment allow to increase output of products with minimal financial investments up to two times, at that the quality of issued pipe remained unchained.
2) Estimated innovative manufacture always offer the possibility of bringing in additional funding for geographical expansion and establishment of new analogous manufactures in other regions of the country and neighboring

countries.

3) Build up business with high-technology equipment at hand have an opportunity of nomenclature enlargement of coating types, specifically yielding of another two types of pipes: PCOT (polymer-coated oilwell tubing (internal)) and PCDP (polymer-coated drill-pipe (internal)). They are used in oil and gas extraction and well site construction.
4) On the basis of new established manufacture it is possible also to create a new enterprise on condition monitoring and further pipeline repair, this will allow to carry out diversification of business activity (was not considered in this project).
5) Prognosticate the development of distribution area in all regions of Russia and neighboring countries, such as Kazakhstan, Uzbekistan, Republic of Belarus, Ukraine and other.

5. Conclusion

Consequently, considering capital investment project assume the establishment of new plant for the application of internal and external anti-corrosive coat in steel pipes. In the article were studied calculation data of economic efficiency of this investment project.

Calculation confirm the practicability of investments, capital investment project on the ground of calculated indexes of a project was recognized as effective, could return a profit in future and meet investor's expectations;

- produced breakeven results allow to confirm: project on manufacture establishment is resistant to the changes (falldown) of sale results, as evidenced by margin of safety of 75-77 % in 7 years.

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The Problems of Personification of Student's Educational Activities in the System "Teacher Training College - University"

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Abstract

The relevance of the problem under study is determined by the necessity of self-realization for a student, a future preschool teacher, on the basis of personification of educational activities in the system "teacher training college - university". The purpose of the research is to identify the specific features and problems, the university teachers face in the process of a teacher training college graduates teaching in terms of student's educational activities personification. The leading approach for the study was anthropological approach, which defined the complex of techniques for the analysis of internal elements of a student's personality: motivation for educational activities, the system of values, abilities for self-education and self-development. The result of the research was a model of projective personification of students' educational activities at university. The article may be useful for the teachers of teacher training colleges and universities, who work in the system "teacher training college - university".

Keywords: *personification, students' educational activities, system "teacher training college - university", self-education, self-realization.*

1. Introduction

1.1 Actualizing the problem

At present time pedagogical science considers future teacher preparation as development of a person, who is a subject of educational activities, aimed at lifelong self-education, self-realization and self-improvement. Both in Russia and in other countries educatee's personality is considered "from the viewpoint of anthropocentrism - as a person (in more personalized (person-developing, subject-oriented form)" (Kalimullin, Gabdulchakov, 2014). It was reported that education has its guaranteed quality if it becomes self-education, development becomes creative self-development" (Andreyev, 2012). Implementation of this approach in pre-school teachers' education is possible if the system of secondary and higher vocational education uses the continuous technology of personification of students' educational activities (Gabdulchakov, 2014).

1.2 Explore Importance of the Problem

According to the enacted Russian state educational standard of pre-school education, the requirements for a teacher's educational status are getting higher. Currently teachers having higher education are in demand in kindergartens in Russia, so Kazan Federal University is developing the system of preschool teachers' education in the system "teacher training college - university". A student, after having pedagogical education of teacher training college, continues his further education at university shortened program. These students differ from others. They are only 18-22 year-old female students. This age is considered to be sensitive for a person's internal sphere development, for personal identity, development of demand for self-realization. They start both studying and working, making their professional career. They want to be individual and independent, that is why they try to combine study and work in kindergarten. As he grows and his development increases, a student stores considerable experience, which can be used as a source for teaching both a student himself and some other people (Petrova, 2009).

Teacher training college graduates are not always ready to study at university, to self-develop and self-educate. Our interviews and watching their study showed that it is difficult for them to listen and make notes of the lectures at the same time. They also have difficulties in making notes of the books, in holding a discussion, judging the events and facts they study. First-year students can't easily acquire verbal information, can't single out the most important items in it, they

cannot be independent in their cognitive activity and have poor progress. At the same time students deeply need independence, self-determination and self-management.

1.3 Features of anthropological approach implementation

In the context of humanitarian model anthropological approach is treated as a system of theoretic statements focused on person as an object. In education anthropological approach requires implementation of the following principles: subjectivity (a university student is considered as an active and independent individual, able for practical activities); dialogue (subject-subject nature of interrelation between a student and a teacher); nature conformity (considering students' age, individual features, developing initiative and independence in educational activities); culture conformity (considering universal, national and regional features) (Firosova, 2014).

1.4 Status of a problem

The problems of educating students in the system «techer training college - university» have been studied by many scholars. They have considered different aspects: pedagogical conditions for developing distant teacher education in the system of regional complex "teacher training university - college" (Belyj, 2002); projecting of educational system "college-university" in conditions of university complex (Anyschenko, 2006); continuity of professional and personal development of future pre-school teachers (Klimentieva, 2004); continuity in communication culture in the system "teacher training college - university" (Kudriavtseva, 2011); pedagogical conditions of effective educational work in the system "college - high school" (Togushova,2001) and others. Students' educational activities was also studied: psychological factors of student's educational activities' success (Ishkov, 2004); the relation between motivation and educational activities' self-organization (Vorobieva, 2012; Kogan, 2004; Reunova, 2013). Other researches of students' educational activities are also of interest (Vlasova, 2014; Kamalova, Hulanichka, 2014; Chircina, 2014, Petrova, 2014; Prokhorov, 2014; Prokhorov, Chernov, 2013).

The problem of personification of student's education at university is widely discussed. The authors consider personification "as an algorithm of reflexive activity of two subjects in educational cognitive process (a teacher and a student)"; (Gabdulchakov, 2013), as "making educational process person oriented, search and actualization of inner personal recourses in every subject of educational activities" (Bolycheva, 2010); as "transferring a student to the position of self-learning, adjusting content of education to himself" (Esaulova, Sukhobskaya, Shadrina, 2011). Some scholars believe that the basis for understanding the matter of personification is the process of conscious self-direction of a student's behavior in educational process. Only this way is possible in transferring for self-learning and further self-education (Esaulova, Sukhobskaya, Shadrina, 2011; Prokhorov, 2014 and others). D.M. Krynitsin studied the phenomenon of professional self-projecting in professional education at higher education institution.

Theoretical study and work experience in pre-school teachers training proves that the problems of personification of educational activities of future kindergarten teachers in the system "teacher training college - university" is not fully studied yet.

2. Hypothesis

Creating the components of professional and personal development of future pre-school teachers in the system "teacher training college - university" may be successful if the model of projecting personification of students' educational activities is designed and realized.

3. Materials and Methods

3.1 The tasks of the research

The tasks of our research are: 1) To reveal the problems of personification of future preschool teachers' educational activities in the system "teacher training college - university". 2) To design the model of projective personification of students' educational activities in the system "teacher training college - university". 3) To verify the proposed model.

3.2 Theoretical and empirical methods

The following methods were used to test of hypothesis:

- theoretical: analysis of philosophic, culturological, psychology-pedagogical literature on the problem. Content analysis of Federal State Standard of preschool education, Federal State Standard of secondary professional education in 050144 speciality (preschool education) dated November, 5, 2009, No 530; Federal State Standard of higher professional education 050100 (pedagogical education), (bachelor degree) dated January, 17, 2011, No 46;
- empirical: watching, educational experiment, survey, interview, study the results of teacher training college and university students' educational activities.

3.3 The trial infrastructure and stages of the research

In the opening stage of our research we studied the possibility for personification of students' educational activities at teacher training college and at university.

In the second stage we analyzed educational standards, curricula and academic programs, created associated curriculum for teacher training college and university for shortened preschool teachers' training.

In the third stage we developed and introduced into practice the projected model of personification of students' educational activities in the process of studying at university.

3.4 Evaluation criteria

The evaluation criteria were: the level of students' readiness for self-realization and self-education; the change in educational activities motivation for professional and cognitive, the rise of importance of professional-system of values and advance in academic progress.

3.5 Experimental procedure and its description

Diagnostic study of some individual internal components, which define educational activities personification of the students who had entered preschool department, allowed us to reveal the problems, arising in students' educational activities when they move from teacher training college to university. As methodological basis of our research we used famous scientists' works on educational activities motives (Ilyin, 2002), students' systems of values (Rokeach, 1973); ability for self-realization (Andreyev, 2013). The research methods were: interview; "Assessment of ability for self-realization and self-education" test by V.I. Andreyev; (Andreyev,1996); diagnostic technique of students' educational activities motives by A.A. Reyan, V.A. Yakunin (Ilyin, 2002); technique of students' system of values diagnostic by M. Rokeach (Zeyer, Pavlova, 2008). 70 students, teacher training college graduates took part in the research. The research was carried out for 3 years.

4. Results

4.1 The significance of students' educational activities personification

The research allowed concluding that teacher training college graduates have prerequisites for joining the process of self-regulating studying at university, but they need to work for creating internal mechanism, instrument for self-creation of the future teacher personality. So, it is necessary to provide the conditions for advantageous development of the students' reflexive personal qualities.

4.2 Solution of primary tasks of didactics

Formation of a student as an educational activities' subject is a long process of a teacher's and a student's co-operation, that is why the model of projective personification of student's educational activities should be used since teacher training college. In this stage of professional education special attention should be paid to formation of educational activities self-organization skills. We recommend introducing the course "Self-organization of student's educational activities".

At university the model is realized gradually. The first stage is student's adaptation to university's learning

environment. External stimulation of forming educational activities motivation and self-organization is the main content of the first stage. Herewith self-organization is understood as a system of skills of educational activities subject to set the goals, plan, organize, control, estimate, analyze and edit study process independently. In the first-year "Culture of student's educational activities" subject is introduced. In this course the students are able to diagnose their own level of educational activities self-organization and associated mental states. Planned and systematic involvement of students in this process lets them understand their role in successfull educational and following professional activities. Students get ambition to regulate the purpose and motives for self-development, obtain skills of self-control and self-regulation of mental states, ability for self-analysis and proper self-acceptance. Students are allowed to elect the study courses.

The second stage is forming individual educational routes, their identifying with the requirements of educational and educational-professional activities. As the students have the certain level of social and professional competence, educational process should immerge the students into new aspects and modern challenges of psychologic and pedagogic science. For this purpose all the teachers prepare and deliver problematic lectures, involving the aspects, which had not been discussed at teacher training college. The lectures content directly or indirectly touches personal education and professional students' interests and experience. Students' activity during the lectures incite them to discussion, helps them outline individual routes of independent project work, aimed at solving the assigned task. The students get new meaning in their life and study. The students are involved into independent work with distant courses in MOODLE system. They perform the tasks of different levels at interactive seminars, workshops, tutorials. The teacher marks student's individual progress in his route.

The third stage is choosing an individual research task, which is interesting for the student, and carrying out different project works: course and later graduate qualification work. This stage finishes with presentation of students' research works at the university annual Research and Practice Conference, international, all-Russia and regional Research and Practice Conferences, profession skill contests. The students' significant achievement is publishing their research works in academic digests along with the university professors' and associate professors' works.

The fourth stage is professional formation self-projecting, realizing their uniqueness and inherent worth. Professional self-projecting is considered to be a process of understanding and foresight the nearest and long-term goal for professional and personal self-actualization, self-analysis and self-education. The students have prospects for the development: entering the Graduate or Postgraduate Courses, making professional career.

4.3 The procedure and results of the experiment

The experiment results showed the tendency for improving the mentioned indexes, which can be seen in the Table and Bar chart.

The students were suggested answering 18 questions of V.I. Andreyev's test, which help to estimate the ability for self-realization and self-education. After the students' answers processing we got the following results.

Table 1. The levels of ability for student's self-realization at the start and at the end of the experiment

The Name of the Levels of Ability for Self-Realization and Self-Education	At the Start of the Experiment		At the End of the Experiment	
	Points	Students Number (%)	Points	Students Number (%)
Very low	18-25	9	18-25	0
Low	26-28	15	26-28	0
Below average	29-31	25	29-31	12
Just below average	32-34	24	32-34	15
Average	35-37	18	35-37	24
Just above average	38-40	6	38-40	18
Above average	41-43	3	41-43	19
High	44-46	0	44-46	12
Very high	47-54	0	47-54	0

The motives of educational activities of student's, teacher training college graduates analysis was made with the technique, describing16 motives for educational activities. The students were to select 5 most significant.

1. To become a highly knowledgeable specialist.
2. To get a diploma.
3. To continue study for the following years.

4. To study well, pass exams with "good" and "excellent" grades.
5. Have to study at university in order just to graduate.
6. To get complete and intimate knowledge.
7. To be always ready for the coming classes.
8. Not to neglect the study.
9. Not to be fall behind fellow students.
10. To provide the future professional activity success.
11. To make contacts and communicate with interesting people.
12. To get teacher's respect.
13. To be an example to follow.
14. To get parents' and others recognition.
15. To avoid disapproval and punishment for poor study.
16. To get intelligent development.

Fig. 1. The motives for university students educational activities selecting

By means of M. Rokeach technique we studied the significance of students' terminal and instrumental values. Terminal values are belief that ultimate purpose of individual existence is worth trying to reach.

Instrumental values are belief that some definite manner or personality property is preferable in any situation. The students were suggested to range the list of values. Let's consider 5 most significant and 5 least significant in each group.

Table 2. Significance ranking of terminal and instrumental values at the beginning of study at university

Rank	Terminal values	Rank	Instrumental values
The most significant		The most significant	
1	Health	1	Education
2	Material security in life	2	Good salary
3	Love	3	Flow of spirits
4	Happy family life	4	Responsibility
5	Interesting job	5	Independence
Less significant		Less significant	
6	Self-confidence	6	Honesty
7	Public recognition	7	Willpower
8	Creativity	8	Open-mindedness
9	Nature beauty and art	9	Tidiness
10	Happiness of others	10	Uncompromising attitude to other people drawbacks

Table 3. Significance ranking of terminal and instrumental values at the end of study at university

Rank	Terminal values	Rank	Instrumental values
The most significant		The most significant	
1	Health	1	Good salary
2	Public recognition	2	Education
3	Creativity	3	Responsibility
4	Development	4	Tidiness
5	Material security	5	Independence
Less significant		Less significant	
6	Love	6	Honesty
7	Self-confidence	7	Willpower
8	Interesting job	8	Open-mindedness
9	Nature beauty and art	9	Flow of spirits
10	Happiness of others	10	Uncompromising attitude to other people drawbacks

5. Discussions

The obtained results show that most of the students, who enter university after teacher training college, have low or mean level of abilities for self-development. We haven't reveal high level of abilities for self-development among these students. The same students in their last year of study at university show not low level: lower than average limits are 27% instead of 49% at the beginning of our experiment. The average level increased by 6%. The better-than-average limits increased by 28%, which means evident progress of this index. 12% of students show high level, which we didn't have at the beginning of the experiment.

The analysis of educational activities of teacher training college graduates showed that academic, cognitive and professional motives dominate in these students, they are oriented at getting the chosen profession more than the students of other groups. In relation to activity these are internal motives. But at the same time getting a diploma was of highest priority for a considerable number of students. It is related to to some students opinion that they had studied all the disciplines necessary for work at teacher training college; that they need a university diploma only for promotion in pedagogical career. This is also one of the problems, arising in students' educational activities and weakening the effectiveness of self- processes development. At the end of study we noticed increase in professional motives and becoming a highly qualified specialist becomes especially significant.

The analysis of terminal values allowed us to conclude that the students realize the value of professional education and material values, such as material security of life and good salary dominate for them. Love, family, interesting job and independence are also significant for female students. At the same time such important values as self-confidence, creativity and happiness of other people happened to be less significant for the students. Material values become more important than professional values, which affects the progress in study. This circumstance set us thinking about the problem of advancing motivation of the students' educational and professional activities. At the end of study we observe changes in choosing the values. Among terminal values the group of professional realization (an interesting job, creativity, development and public recognition) became the most significant. The values of self-esteem (salary, education, responsibility and the like) dominate among instrumental values. The obtained results support our hypothesis.

6. Conclusion

Solving the revealed problems in personification of students' educational activities in the system “teacher training college - university” allows thorough forming the continuity in professional activities at different stages of education system. Present-day situation makes it necessary to improve the integrated curricula and academic programs and also studying the experience of the student's internal action and providing psychological support in developing reflexive axiological self-perception, self-control and self-regulation. The model of projective personification and adequate technology form a student as a subject of independent and conscious selection of educational routes and ways to solve the tasks of professional and personal achievements.

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The Prerequisites for the Formation and Development of the Regional Market of Consulting Services in the Oil-Producing Regions of Russia

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Abstract

The economy of modern oil-producing regions is characterized by the accelerated growth of industrial production volumes, the number of created and established industrial companies, relatively high activity of small business, high level of investment attractiveness of the region, infrastructure, rapidly evolving social sphere. The most dynamic sector of the regional economy is the sector of oil-producing industries of the economy, historically developed in the region on the basis of the proven oil fields. It is obvious that the increased competition on the market of oil production with an objective necessity requires activation of such factor of its minimization as consulting. In addition, the need to improve business efficiency makes small oil companies seek the assistance of a consulting firm to search for qualified specialists, to optimize tax payments, develop marketing and advertising campaigns. In other words, the increase in the number of enterprises, their distribution on the territory of the region directly affects the development of the consulting services field. Consequently, big consulting companies are concentrated in oil-producing regions. The article describes the main economic and organizational/managerial prerequisites for activating the market of consulting services in the oil-extracting sector of the economy of the region, including the intensification of the regional production clusters, the formation and development of small upstream companies focused on oil extraction in inefficient and poorly established fields with the use of modern technologies, a high level of scientific-technical and educational potential of large urban agglomerations and several others. The article is intended for students studying methods of conducting marketing research on the market of consulting services, teachers of the "Marketing in services sector", "Consulting" disciplines, as well as for marketing experts and managers of consulting companies working out strategies for their development in the oil-producing regions of Russia.

Keywords: *consulting services, prerequisites for intensification, innovative component, competition in the market of oil production, small oil-producing companies*

1. Introduction

1.1 The relevance of the problem

Activation of service industries and the enhancement of their role in the formation of GDP is the hallmark of the transformational stage of the development, and the level of development of the sphere of services is a criterial feature of the society development. The growing importance of the services sector is associated not only with the rapid growth of the services sector, but with the dominance of this sector in the economic structure. In this sector the key factors of the economic growth are formed, including intangible assets, and information technology. Here the degree of development of the services sector becomes one of the main criteria for assessing the competitiveness of various countries' economies (Voskolovich, 2007).

With the development of market institutions of the economy, the share of services for business is constantly increasing, which include, above all, consulting services, the value and the volume of which increase significantly as far

as the specialization of business, when the recruitment of consulting firms begins to significantly affect the growth of company revenues (Tslaph, 2011).

In the modern economy of the services sector the consulting services are able to actively influence the most important areas of the economic growth of small companies (Bavina, 2008), including the changes in the structure of their production due to a growing sector of consulting activity in terms of the complicacy of the combinatorial satisfaction of their needs in complex highly professional services related to solving the financial, managerial, tax (Kirin, 2006), sales, marketing nature problems (Zilberman, 2006). Besides, consulting promotes active growth of the influence of the managerial, organizational and economic innovations on the formation of competitive strategies for their development, when consulting services are becoming the tools to strengthen their competitiveness, sustainable economic development of the region as a whole (Gerasimov, 2008).

Therefore, the prerequisites for the formation and development of the regional market of the consulting services in oil-producing regions, as one of the important revenue-generating sectors of the regional economy, seem quite appropriate.

2. Methodological Framework

2.1 The research objectives

The research objectives were to elaborate the theoretical and methodological approaches to the formation and development of the regional market of consulting services in the oil-producing regions of Russia, the study of the theoretical and methodological basis of the consulting services classification, the analysis of factors and conditions that form the prerequisites for the development of the regional market of consulting services in the oil sector of the economy of the Republic of Tatarstan, the study of the patterns and trends in the formation and development of the regional markets of consulting services.

2.2 The theoretical and methodological framework

The theoretical and methodological basis of the research were the fundamental provisions of the economic theory, the theory of the services sector, scientific works of domestic and foreign scientists on the problems of evaluating the effectiveness of consulting services and their types, policy documents and the provisions of the state authorities, federal and regional laws and regulations, official statistical data and the primary data from the reporting of the economic entities, published in the official press.

The methodological basis of the conducted research was the integrated use of a wide range of various situational, dynamic, comparative, structurally-functional, economic-statistical analysis methods, the tabular and graphical interpretation of the actual data.

3. The Results

3.1 The general economic prerequisites for the diversification and development of the service industries in oil-producing regions of Russia have been proved, including the outrunning growth of volumetric measures of oil producing industries, their profitability, and the industrial infrastructure development.

The economy of the Republic of Tatarstan for many years has been a donor region in the structure of the Volga Federal District. This is reflected in the rapid growth of industrial production volumes, the number of created and established industrial companies, relatively high activity of small business, a high level of investment attractiveness of the region, well-developed infrastructure, rapidly evolving social sphere.

The fastest growing sector of the regional economy is the energy sector, including the primary development of oil-producing and oil-refining industries, historically developed in the region on the basis of the proven oil fields. This sector is represented, on the one hand, by the Russia's largest oil-extracting companies, such as JSC "Tatneft", and, on the other hand, a group of small oil companies, specializing in the extraction of hard-to-reach and low-margin deposits.

It is quite obvious that the increased competition on the market of oil production with an objective necessity requires activation of such a factor of its minimization as consulting. In addition, the need to improve business efficiency makes small businesses in the industry seek the assistance of a consulting firm to search for qualified specialists, to optimize tax payments, to develop marketing and advertising campaigns. In other words, the increase in the number of

enterprises, their distribution on the territory of the region directly affects the development of consulting services (Bache, 2007). As a result, the major big consulting companies are concentrated in oil-producing regions of the Republic of Tatarstan and in its capital, Kazan.

According to the official statistics, the region's economy develops at a fairly steady pace, able to ensure the competitiveness of the regional economy. So, over the last ten years, despite the peak years of the global financial crisis which had a negative impact on the major budget revenue generating branches of the economy of the region, the growth rate of GDP and other key economic indicators remained positive.

The volumetric indices of mineral production, among which oil has a dominant value for the period from 2005 to 2013, were continuously growing. These tendencies continued in the growth rate of the added value in the sector of extractive industries, the highest values of those were recorded in 2011 − 7.7%.

However, the extractive industry of the economy was developing at a higher rate compared to other industries in the region. Thus, the industrial production index in the group of the extractive industries sector, despite the fact that it was characterized for the period from 2005 to 2013 by lower growth rates, remained stable even in the crisis year of 2009, when the index of the industrial production in the whole industry in the region fell to 95.6%. All of this testifies to the stability of the functioning of this sector of the economy, the availability of the competitive compensation mechanisms to stabilize the economic growth, making it the most attractive for investors.

Moreover, in the 2009 crisis year among the profit of 88.6 billion rubles earned by the entire industry of the region, 81.6 billion rubles or 92% was obtained in the extractive industries sector, the dominant value in which belongs to the industry of oil production (Tatarstanstat, 2014).

The level of profitability of the mining industries throughout the entire analyzed period was almost twice the average level of profitability of the Republic of Tatarstan industry. So, if the industry average level of profitability in 2013 was 16.5%, then in the industries of mining − to 37.9%, which is more than twice as much. The mining industry and, above all, the oil-mining sector is characterized by a high level of the investment attractiveness, as every fourth ruble of the total investments in the industry of the Republic of Tatarstan accounts for the oil-producing companies.

At the same time, of great importance in the rapid development of the industry is the pricing factor. So, if in the crisis year of 2009, the price index in the whole industry in the region was only 128.5%, in the mining sector it reached 220%. Even in the relatively stable 2011 the oil prices were growing twice faster than the prices of the industry-wide products. If the overall industry price index in 2011 was 116.5%, in the industry of mining it was twice higher and amounted to 132.2% (Tatarstanstat, 2014).

3.2 The organizational factors of the accelerated growth in oil-producing industries have been justified in the economy of the regions, including the dominance of the private ownership in their structure

The organizational factors in the production of fossil fuels developed at a rapid pace. So, as for the whole industry in the region for the period from 2005 to 2013, the number of newly established companies increased from 5676 up to 7966 units or by 40%, but in the production of fossil fuels their number increased over the same period to more than 2.5 times. At the same time, the share of the production of fossil fuels industry somewhat decreased in the total output of the industrial production of the Republic of Tatarstan from 39.4% in 2005 to 27.6% in 2013. This tendency is explained by the construction of a number of Europe's largest refineries, which in the statistical records are not included in the production of the fossil fuels (Tatarstanstat, 2014).

The organizational factors of the accelerated growth of the production of fossil fuels industry were also reflected in the dominance of the private legal form among the enterprises (Buleev, 2009). According to the official statistics, in 2011, almost 9 out of 10 enterprises of the industry of the fossil fuels production were in private ownership, which can be seen as one of the most important prerequisites for the development of consulting services in this sector, which are one of the most effective tools to increase their competitiveness.

Almost 100% of the production output of the industry of fossil fuels production accounts for non-state enterprises, including 30% of this amount accounts for private and 70% for the enterprises of mixed ownership. Interesting enough are the tendencies in the formation of the average number of employees of this industry and the facilities of its fixed assets. So, almost 56% of employees of the fossil fuels production industry work in private enterprises and 44% − in mixed. But the main funds of the industry, predominantly (72%) belong to the enterprises of mixed ownership, which is quite natural, and only 28% of the fixed assets of the industry are privately owned. This trend is explained by the participation of the state in the ownership of the fixed assets of the enterprises in the production of fossil fuels, as the representative of the society interests in respect of minerals underlying in the territory of its resident population.

Table 1. The structure of the main indicators of the fossil fuels production and manufacturing sector of the Republic of Tatarstan as a whole according to the forms of ownership in 2013 (in percentage)

	A number of organizations, and territorially-autonomous subdivisions	The volume of shipped goods (works, services)	The average number of employees	The gross book value of the fixed assets at the end of the year
The industry total: including the forms of ownership:	100	100	100	100
state	5.1	1.5	5.7	1.6
municipal	1.1	0.4	1.8	1.1
public organizations	0.5	0.1	0.4	0.0
private	86.6	45.4	55.4	41.9
mixed and other	6.7	52.6	36.7	44.6
The extraction of fossil fuels:	100	100	100	100
including the forms of ownership:				
private	88.6	30.4	55.7	28.2
mixed and other forms	11.4	69.6	44.3	71.8

The source: (Tatarstanstat, 2014).

Thus, it is possible to assert with relative certainty, that proportionally to the increase in the number of enterprises in the industry of fossil fuels extraction the capacity of the market of consulting services increases, which, in turn, contributes to the emergence of new consulting companies. In other words, demand creates supply (Kurbatova, 2005).

3.3 The prerequisites for the accelerated development of the consulting market in the Republic of Tatarstan have been identified in comparison with other regions of the Volga Federal District

Due to the fact that small enterprises in the industry of fossil fuels extraction operate mainly in high-cost and low-margin deposits, generating relatively low profit, the funds for payment of consulting services they have, as a rule, are formed at the expense of own and borrowed sources. While the borrowed funds cover a significant portion of these costs, as the creditworthiness of these companies is quite high and their activities are attractive to banks (Logvinenko, 2009).

The most significant regional prerequisites for developing the consulting services market in the Republic of Tatarstan in comparison with the territorial subjects of the Volga Federal District, which can be expressed by the generally accepted statistical indicators, are presented in tab. 2.

Table 2. Comparative indicators characterizing the prerequisites for developing the consulting services in the regions of the Volga Federal District for 2013 year

	The index of industrial production (%)	The volume of investments in the basic capital (million rubles)	The share of overdue indebtedness under corporate loans (%)	The growth rate of the remunerative enterprises' profit (%)	The share of profitable enterprises (%)	The growth rate of loans granted to legal entities (%)	Gross regional product per capita (rubles)	The number of the enterprises and organizations
The Republic of Chuvashia	104.5	41571.5	13.6	73.3	59.5	98.4	109068	23904
Kirov region	120.9	30552.2	6.6	153.0	56.1	99.1	103851	40839
The Nizhny Novgorod region	121.1	172320.1	8.7	111.9	59.8	98.9	163841	91533
Orenburg region	109.5	88756.2	3.8	49.1	61.0	100.4	196257	40941
Penza region	113.1	46273.1	8.80	75.4	56.8	100.5	109587	27185
Perm Krai	133.9	129943.3	6.4	12.3	55.2	100.7	201324	75714
The Republic of Bashkortostan	124.2	139570.2	9.8	121.0	79.2	100.6	158932	81383
The Republic of Mari El	129.0	15877.7	2.9	93.2	65.2	101.1	98360	15522
The Republic of Mordovia	134.6	32582.9	4.0	81.6	65.5	101.1	111904	16295
The Republic of Tatarstan	109.6	267990.0	6.4	49.4	68.2	99.1	234324	104469
The Republic of Udmurtia	103.9	41308.7	19.4	95.0	55.9	100.4	150170	37188
Samara region	115.1	132568.6	10.5	135.1	54.4	99.4	182612	102705
Saratov region	112.3	78073.4	7.0	112.3	56.3	98.1	127365	54009
Ulyanovsk region	125.9	44848.1	4.4	84.9	63.6	101.2	117245	28767

The source: (Rosstat, 2014)

According to the official data, among the regions of the Volga Federal District, the Republic of Tatarstan is highlighted for a variety of parameters directly related to the intensification of the processes of the consulting services market formation and development. So, the Republic of Tatarstan is in the lead in 2013 among the regions in terms of the investment amount in the fixed assets, the value of which has approached to 270 billion rubles in the region that is far ahead of the nearest competitor, the Nizhny Novgorod region, where the value of this indicator is lower by almost 100 billion rubles.

The second position after the Republic of Bashkortostan (79.2%) belongs to the Republic of Tatarstan in the share of profitable enterprises in the total number of the enterprises and organizations of the region, the value of which reached in 2013 to 68.2%. This prerequisite can be seen as a regional financial aspect of the development of the consulting services market in the Republic of Tatarstan (Tatarstanstat, 2014).

The advanced positions are held by the economy of the Republic of Tatarstan also on such vital structural indicators as GDP per capita value and the total number of the economic entities in the region. So, in 2013, the GDP per capita in the region was 234324 rubles, which is by 16% higher than the nearest competitor represented by the Perm region (Rosstat, 2014).

As the essential prerequisite for developing the regional market of consulting services is the growing entrepreneurial activity in the region, which is expressed, in particular, in the growth of indebtedness under the loans granted to legal entities by credit institutions. So, the Republic of Tatarstan takes the lead in the volume of indebtedness on loans granted by credit institutions to legal entities, the value of which in 2013 reached 328.6 billion rubles. This value of the entrepreneurial activity is indicative of the investment attractiveness of the industries of the regional economy, the solvency of the banking system, as well as the relatively high efficiency of business-projects, the development and the implementation of which are the potential for the development of the market of consulting services in the region (Pesotskaya, 2006).

Moreover, even in the crisis year of 2009 the amount of debt on loans granted by banks to legal entities in the Republic of Tatarstan was the highest among the territorial subjects of the Volga Federal District and exceeded 283 billion rubles, which was significantly higher than that of the nearest competitor of the Samara region, where the value of this indicator amounted to 231 billion rubles (Rosstat, 2014).

An important part of the entire set of the prerequisites for developing the regional market of consulting services is the data on the penetration of information and communication technologies into the business-processes. If we analyze these data in the context of the territorial subjects of the Volga Federal District, the Republic of Tatarstan has the chances to fully use the potential of information and communication technologies as an incentive for developing the regional market of consulting services. So, in 2013, the computerization processes coverage of the Republic organizations amounted to 98.6%, with 80.6% of all the organizations using the local area networks, which is higher than in other regions of the Volga Federal District. At the same time, 95.6% of the organizations used email in their work, which is higher than the average for the Volga Federal District, where this rate accounted for 85.6% (Rosstat, 2014).

Significantly higher in the Republic of Tatarstan, compared to the average indicators for the Volga Federal District, is the global information network coverage of the organizations in the region. In 2013 this figure in the Republic of Tatarstan stood at 95.6%, while in general for the Federal District it was equal to 86.9 per cent, nonetheless every one organization in three in the region had their own web-site.

The analysis of the factors limiting the investment activity of the enterprise structures shows that, over the past 10 years the entrepreneurs' attitude to investment risks and legislation in the sphere of investment activity has significantly changed. So, if in 2000 one in three of the organizations as factors impeding the investment activity called the imperfection of the legislative and regulatory framework governing the investment processes, in 2013 − only one organization in ten makes this factor as the denoted reasons. All this shows a real progress in the field of the legal support of the business activity, which is also a potential for the successful development of the consulting services in the regions of the country (Deeva, 2010).

The most important component of the modern regional consulting services market is its innovative component (Biswas, Twitchell 2004). The Republic of Tatarstan is now the leader in costs and development of innovative types of products among the subjects of the Volga Federal District, which is a huge potential for the development of the consulting services as an important factor in the effective commercialization of innovations. So, in 2013 in the Republic of Tatarstan 169 organizations functioned, which were engaged in innovative activities, that represents over 18% of their total number in the region. These parameters significantly exceed those of other subjects of the Volga Federal district, such as the Republic of Bashkortostan (13.5%), Nizhny Novgorod (17.7%), Samara region (9.8%), and Perm region (13.6%), Udmurtia (15.1%). The major part of the innovative activity of the entrepreneurs of the Republic of Tatarstan accounted for technological innovations as the most complex and effective types of innovative activities (Tatarstanstat, 2014).

Even more pronounced dominance of the Republic of Tatarstan is evident when comparing the capital and the

operating costs of innovations with similar indicators for the district subjects. So, in 2013 in the Republic of Tatarstan the total capital and current expenditures on innovations accounted for 44.4 billion rubles, while in the Nizhny Novgorod region this indicator amounted to 30.4 billion rubles, in the Samara region − 17.6 billion rubles, the Republic of Mordovia − 16.1 billion rubles, Perm − 17.3 billion rubles, the Ulyanovsk region − 1.8 billion rubles (Tatarstanstat, 2014).

4. Discussions

The works of Bavina P. (2008), Bache E. (2007), Biswas S. and Twitchell D. (2004), Voskolovich N. (2007), Gerasimova V. (2008), Deeva E. (2010), Zilberman M. (2006), and other researchers are dedicated to the analysis of the prerequisites for the formation and development of the regional market of consulting.

The works of Buleev A. (2009), Kirina L. (2006), Kurbatova O. (2004), Logvinenko M. (2009), Pesotskaya B. (2006), Tslaph V. (2011) and others are dedicated to the efficiency analysis of the consulting services market's functioning.

However, a number of issues relating to the classification, structuring of the prerequisites for the formation and the development trajectory of the regional consulting markets remain poorly studied, as evidenced by the development dynamics of the consulting market in the regions of the country.

5. Conclusion

Thus, as prerequisites for the development of the regional market of consulting services in the oil industry of the Republic of Tatarstan, the following can be specified:

- development of regional industrial clusters, focusing on high-tech methods of oil production, with a concentration of such clusters in the urban cities of the Republic;
- formation and development of small oil-producing companies focused on oil production in inefficient and poorly established fields with the use of modern technologies (mechanical, resource-saving and environmentally adapted);
- development of large transportation-logistic and manufacturing sites within the development of the oil-producing industry in the region having the necessary capacity of the bandwidth and providing a holistic relationship of the centers of the economic growth, with its gradual integration into the emerging global transport systems;
- significant reduction in intra-regional differentiation in the level and quality of the social environment and the population's income, the convergence of the living standards between the metropolitan regions and the province, large and small cities in the oil-producing regions of the Republic;
- a high level of scientific-technical and educational potential of large urban agglomerations with a high quality habitat and human potential, the dynamic innovative and educational infrastructure;
- formation and development due to the high share in the budget of the region of the oil-producing industries, and of the relatively large financial centers in the capital of the region with the corresponding financial infrastructure;
- formation of the fastest growing cities in the oil-producing regions of the Republic, characterized by the influx of population, investment and the related social and industrial infrastructure;
- creation of a regional component of the human potential in the oil-producing regions of the Republic, based on the high level of the educational and professional potential historically developed in higher educational institutions of the Republic.

6. Recommendations

The obtained results allow to evaluate and classify the main prerequisites for the formation and development of the regional market of consulting services in the oil producing regions of the country, as well as to improve the scientific and methodological framework to assess the impact of the socio-economic development level of the regional economy on the formation of the consulting services market and to estimate its effectiveness. In addition, the obtained results can be useful to the government authorities in the improvement of national industrial policy in regulation of the processes of forming and developing the market of consulting services in the oil-producing regions of Russia.

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Competency Development for Safety Measures on Roads as a Strategy for Prevention of Traffic Accidents

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Abstract

Traffic safety is not only a component of the protection of life and health of people and their property but also a public good being an aggregate of material and spiritual values related to provision of traffic safety. A purpose of this article is to develop a methodological framework for the competency development with teachers-to-be regarding safety measures on roads. The major approach to the investigation of the problem in question is a modular competency-based approach. The most efficient forms of development of the competency in safety measures on roads with professionals-to-be are as follows: didactic games; variable test-drives; simulator-based practice; case studies on problems of safety measures on roads; development and implementation of academic educational and industrial projects regarding safe behavior on roads, arrangement and implementation of special contests or events focusing on safe behavior on roads. The materials of this article can be used to elaborate educational courses for professionals-to-be in the field of "health and safety", as well as to develop Republic-wide target programs focusing on improvement of the traffic safety and the federal target program for the improvement of the traffic safety till 2020.

Keywords: *health and safety on roads, competency development, methodological framework, modular competency-based approach.*

1. Introduction

At present, personal health and safety on roads is one of global values of the mankind. It is conditioned with potential hazards of the traffic and the process of its intensification for individuals and for the society. Hence, the necessity occurs to develop awareness, skills and experience of safe behavior on roads with people. The implementation of this objective has necessitated training of professionals for provision of health and safety on roads within the pedagogical education system: it is necessary to develop competency in health and safety on roads with higher-education institutions graduates specializing in the profession 033300 "Health and Safety" qualified as health and safety instructors. The training of the professionals-to-be in the field of health and safety is carried out based on special educational programs approved by the Ministry of Education and Science and agreed with the Ministry of Interior and the Ministry of Emergency Situations of the Russian Federation. The training of the professionals-to-be under such programs ensures integration of awareness and skills in a unified system that conditions development of new competencies vital to preserve the life in the 21st century, one of such competencies being the awareness of the health and safety on roads. (Borovsky, 1984; Belkova, 1994; Belov, 2000). The structure of this competency comprises theoretical knowledge of factors, essence and structure of traffic safety; skills and abilities to identify and prevent hazards or threats on the road capable of inflicting irreparable harm (damage) to vital interests of an individual, as well as to ensure personal and public safety on the road.

Analysis of the national experience in in the field of traffic provision enabled to identified the following crucial conditions for the development of an individual's safe behavior on the road: development of regulatory and legal framework including federal and regional laws, decrees of the President of Russia, decrees of the Government of Russia, federal target program "Improvement of traffic safety in 2006–2012"; higher activity of departments and committees in charge of the traffic safety throughout the "managerial vertical"; arrangement of information and propaganda work aiming to improve legal awareness, focusing of public attention on the matters of traffic safety, learning basic ideas on hazardous situations on the road and their effect on the individual's life and health; energizing of work with children, adolescents and youths in order to train the rules of safe behavior on the road; improvement of control and supervision activities regarding the provision of the traffic safety (Akhmadiyeva, 2011; Alekhin, 2010).

Analysis of the foreign experience in in the field of traffic provision proved that in order to develop and individual's safe behavior on the road, the following conditions are to be met: speed management; complete inadmissibility of drunk driving; application of seatbelts; better roads quality; improvement of structural safety of vehicles; lower risks for beginner

drivers; insurance of vehicles and the driver's and passengers' health; development of preventive programs (regarding safe transportation of children to and from the school, safe operation of the public transport and cargo transportation on roads); development of the NCAP (New Car Assessment Program) information program; hosting of the Traffic Safety Week upon resolutions of the UN in member countries.

2. Materials and Methods

The main approach for the investigation of the problem of developing the competency in the health and safety on roads with professionals-to-be in the field of health and safety is a modular competency-based approach considered by the author as correlative to systematic, integrative, differentiated, acmeological, contextual approaches, a special training of professionals-to-be under the condition of integration of education, science and industry that conditions development of their alacrity to efficiently perform their professional objectives (Moshkina, 2002; Yakupov, 2007; Telegina et al., 2015; Khairullina et al., 2015). It was established that as a part of a training practice, the modular competency-based approach conditions development of competency models with graduates of professional schools. The graduates are to possess the aggregate of knowledge and competencies that ensure not only a performance of their labor functions in the contemporary information- and technology-based environment, but also an ability to develop it as applicable to a certain project, to quickly adapt to external alterations of the environment, to identify and to allot problems and to solve challenging matters.

The following criteria are highlighted in the article as basic principles for development of health and safety on the road being the competency of the professionals-to-be:

- participative principle that implies various forms of social partnership between professional education institutions and ministries, departments and committees in charge of arrangement and safety of traffic in the process of development of the traffic health and safety as a competency of the professionals-to-be, and regulates the update of the development contents of such competency considering alterations of traffic rules;
- continuity principle that conditions systematic integrity of special events ("Green Light", "Traffic Science School", "School bus", "Autosession", "Autolady", etc.) and training programs on basics of traffic health and safety in the vertical and horizontal structure of the training process; development of the willingness to learn for the whole life with the trainees ("life-long education");
- cluster principle aiming to integrate target, incentive, contensive, activity-based, and reference and qualificatory components of the pedagogical process for the development of the traffic health as safety as a competency of the professionals-to-be;
- productivity principle that ensures development of willingness to behave safely on the road with the professionals-to-be by means of their participation in development and implementation of scientific educational and industrial projects in the field of traffic health and safety (rallies of young traffic inspectors; development and implementation of automatic video enforcement systems for traffic rules violations; development of the transport infrastructure; assistance to victims to traffic accidents; development of awareness-raising and educational web-sites focusing on the traffic safety; activities of go-cart clubs, etc.);
- personification principle that conditions integrated and deliberate impact on development of personality features; development of sustainable, conscious and positive attitude to the traffic safety; identification of a personal development trajectory for elaboration of the traffic health and safety competency for each professional-to-be;
- preclusiveness principle which means prevention of reckless behavior of road users; development of preventive programs and arrangement of awareness-raising and propaganda work in order to ensure traffic health and safety.

The aggregate of the above-mentioned principles ensures systematic integrity of contents, forms, methods and conditions for the process of development of the traffic health and safety as a competency of the professionals-to-be.

The basic methods for the investigation of the problem of development of the traffic health and safety competency are as follows:

- theoretical methods (scientific analysis of the professional literature and training material for the problem in question, studying and summary of the pedagogic experience regarding the subject of the research, contents analysis, cluster analysis, modeling);
- social and pedagogic methods (observation, questioning, conversations, test exams, expert evaluation, event analysis, monitoring, action research, role-play and business games, comparison of current statements and

arguments of the professionals-to-be to previous ones);
- experimental methods (variable-based test-drives, simulator-based training, summative cross-section, arrangement and performance of a formative experiment);
- statistical analysis and conceptual interpretation of the research results, their mathematical processing and grouping.

3. Results

It was found that innovative methodological framework for development of the traffic health and safety competency with the professionals-to-by is an aggregate of especially arranged interaction of subject of the pedagogical process and methodological study aids that define objectives, stages, forms, methods and criteria of making the professionals-to-be ready to fulfill tasks related to the manifestation of such competency in the field of the traffic safety.

Quality of the innovative methodological study aids is an indicator of the methodological culture of instructors and their pedagogical creativity. On the one hand, instructors of the higher education are practice-focused professionals that influence the professional-to-be with their personality features, scientific achievements, and combine the arrangement of the educational process with scientific research. On the other hand, the instructor is the lead subject of the educational process that interacts with the professionals-to-be on the basis of humanistic education principles in order to train competitive professionals and to shape the personality of the trainees. The following can be highlighted as components of the methodological culture: mastering the methodological (general scientific and psychological pedagogical) knowledge and the ability to actively apply it in the professional activities, focus on social values, and autopsychological attitude.

It was further established that generation of the professional training system on an integrative basis (integration of educational institutions with the science and industry; integration of training forms and methods; integration of common and professional knowledge; integration of theory and practice; integration of didactic concepts; subject-oriented and target integration of disciplines within scientific, social, humanitarian and professional cycles; subjective integration; integration of generation of professional and personal competencies with that in the traffic health and safety) conditions generation of a comprehensive idea of the traffic health and safety, recognition of priority of the traffic rules observation, sustainable attitude of the personality towards safe behavior on the road, generation of alacrity for proactive actions to prevent hazards or threats.

The informative episodic environment is defined as a multi-dimensional and polyfunctional surrounding of the subjects of the pedagogical process that impacts the generation of belief foundations for contemporary problems of vital activities, responsible and respectful attitude towards personal and public safety, resilience in hazardous or threatening situation occurring on the road with the professionals-to-be, as well as obtaining skills and experience for the provision of the traffic health and safety. The informative component of the environment shapes the subject field for the traffic health and safety. The episodic component conditions arrangement of a dynamic grid of interlinked events that apply a regulatory impact to the understanding of the necessity to prevent hazards and threats on the road that may inflict irreparable harm (damage) to an individual's vital interests; attitude towards the personal and public safety; the ability to adequately respond to various hazardous situations taking their abilities into account. The events that fall within the field of perception of the specialist-to-be serve as a subject to assessment, food for thought and grounds for vital conclusions.

Creation of an interactive social infrastructure considering pedagogical requirements implies arrangement of a system of efficient interaction between social and pedagogic institutions and the Traffic Police, public organizations, ministries and departments interested in generation of the traffic health and safety competency with the professionals-to-be in order to integrate educational, professional, project-based and extra-curricular activities of the professionals-to-be. The interactive nature of the social infrastructure is conditioned with application of such forms of training as variable-based test-drives, practical training on simulators, participation in activities of driving schools and go-cart clubs, monitoring of the public opinion regarding the traffic safety, contest and events in the process of developing the safe behavior on the road.

The experimental work to generate the traffic health and safety competency with the professionals-to-be was carried out from 2009 to 2014. The experimental group was comprised of 48 instructors working at the physical training and 270 professionals-to-be trained for the profession 033300 "Health and safety" to be qualified as "Instructor for health and safety" in the Kazan (Volga) Federal University.

In the course of the experiment, the following was implemented: didactic aid "Safety on the road and in public transport", multimedia didactic aid "ABC of traffic science", methodological study aid for generation of traffic health and safety competency with the professionals-to-be "Teaching the rules of safe behavior on the road", methodological recommendations to arrange the monitoring of the public opinion regarding traffic safety problems and panel talks "Safety

as seen by the youth", variable-based test-drives, electronic information media for propaganda of safe behavior on the road for various ages, computer games "Rules of behavior on the road", a kit of didactic materials for prevention of injuries in traffic accidents, methodological recommendations to attract the professionals-to-be to driving schools and go-cart clubs, arrangement of practical training on simulators, hosting special contests and events ("Attention: children!", "Attention: pedestrians!", "Polite driver", "Crosswalk", "Safe wheels", "Green light", "Help the first-grader get to school safe", "Traffic Science School", "Autosession"), a commemorative event for victims of traffic accidents, driver's handbook, case study for independent learning of traffic rules and mastering of skills and abilities to secure the traffic health and safety.

Table 1. Development dynamics for alacrity for professional activities focused on generating the traffic health and safety competency with professionals (%)

Item	Major indicators of future professionals' alacrity for the professional activities focused on generating the traffic health and safety competency.	Before the experiment	After the experiment
	Motivational alacrity		
1	Willingness to work with children and adolescents to develop safe behavior on the road	45	85
2	Interest in the discipline "Safety on the road and in public transport"	60	80
	Research activities		
3	Participation in scientific seminars, conferences highlighting the problems of the traffic safety	0	13
4	Publications on the problems of the traffic safety	0	5
5	Participation in arrangement and hosting contests or events related to the promotion of rules of safe behavior on the road	4	83
	Methodological alacrity		
6	The ability to arrange the activities intended for mastering the knowledge, skills and abilities of safe behavior on the road	54	75
7	Knowledge of basics of health and safety on the road	4	15
8	The ability to assess current and final results of activities intended for mastering the knowledge, skills and abilities of safe behavior on the road	37	70

4. Discussions

The theoretical basis of safety is a subject to research works of foreign (Aron, 1992; Kissinger, 2014; Lippman, 2004; Waltz, 1985 and others) and Russian sciences (Alekhin, 2010; Vasilyeva, 1999; Belkova, 1994; Glebova, 1999; Demin, 1976; Osipova, 1990; Pershina, 2006; Subetto, 1997; Ursula, 1996 and others).

I.A.Alekhin (2010), developed new approaches to the improvement of the methodology and theory of safety of life sustenance systems in the contemporary education; he elaborated the didactic ideas on the matters of social and pedagogic support for the safety of trainees; he developed innovative safety technologies in the education system. He also defined theoretical methodological and applied pedagogical provisions in the development of the theory of safety of educational systems; I.A.Alekhin (2010) identified the role of military education in the provision of safety of educational systems in the Russian Federation.

Sociological researches in the field of safety were performed by such scientists as, W.Beck, (2000); E.Giddens, (1994); N.V.Kuznetsov, (2000); N.R.Malikova, (1992); A.AProkhozhev, (2002); P.Shtompka, (2005) and others. Safety within the context of coevolutional and sustainable development was considered by E.IGlushenkova, (2004); V.I.Danilov-Danilyan, (1999); S.I.Doroguntsov, (2002), and other. Mechanisms of generating the culture of safety are highlighted in research works by V.V.Anisimova, (2006); O.G.Grokholskaya, (2010); V.N.Moshkina, (2002) and others. Methods of teaching the basics of health and safety are elaborated in the works of S.V.Belov, (2000); A.V.Ilyitskaya, (2007); A.F.Kozyakov, (2007); A.T.Smirnov, (2009) and others. A regional system for prevention of injuries in traffic accidents was substantiated by R.N.Minnikhanov, (2003); I.A.Khaliullin, (2003); L.G.Akhmetshina, (2003). The process of generating the transport culture and safety on the road was researched by B.E.Borovsky, (1984); I.A.Korshakov, (1988) and A.M.Yakupov, (2007).

However, methodological foundations for generating the idea of health and safety on the road as a competency of a pedagogue-to-be are not sufficiently elaborated in the research literature.

5. Conclusion

Taking the above into consideration, introduction of the basics of the traffic health and safety based on the modular competency-based approach to the professional training of the professionals-to-be in the field of "Health and safety" is necessitated both with an increase in numbers of traffic accidents and the role of the human factor in them.

The essence of an individual's health and safety on the road consists in being protected against hazards or threats capable of inflicting irreparable harm (damage) to the individual's vital interests.

The structure of the health and safety on the road includes comprehensive understanding of the health and safety on the road, responsible and respectful attitude to personal and public safety, the alacrity to carry out proactive acts to prevent the hazards or threats, the abilities and skills of securing the health and safety on the road taking one's capabilities into account.

The contents of an individual's health and safety on the road ensures development of the competency in this field with the professionals-to-be that reflects cognitive, dispositional and perceptive personality features and not only conditions the development of the willingness to behave safely on the road but also influences their public and moral attitude, social identity and self-perfection, and the way of life.

The experimental work focusing on development of the competency in the health and safety on the road with the professionals-to-be proved that the most efficient are the integrated forms of training (didactic games, variable-based test-drives, practical training on simulators, case studies on the problems of the traffic health and safety, development and implementation of educational and industrial projects regarding the safe behavior on the road), introduction of the modular competency-based training course "Safety on the road and in public transport" to the contents of the training, arrangement and hosting of special contests or events focusing to the safe behavior on the road that promote the apprehension of the necessity to prevent hazards and threats on the road that may inflict irreparable harm to an individual's vital interests and also develop the willingness to behave safely on the road and to consider their capabilities with the professionals-to-be.

6. Recommendations

The materials of this article can be used to perfect training courses within the training system for the professionals-to-be in the field of "Health and safety", as well as for development of Republic-wide target programs focused on improvement of the traffic safety and the Federal target program for the improvement of the traffic safety till 2020.

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The System of Educating Pre-Service Teachers to Implement Civic Education in Schools

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Abstract

Russia is undergoing difficult time changes in social development and radical changes that cause ambiguous consequences in social sentiments, behavioral practices and values of younger generation. In this regard, one of the socio-political challenges of Russia at the present moment is formation of civic society. This article concerns the development of the preservice teacher readiness to implement civic education of younger generation. The primary result of the article is the developed by the authors system of future teachers' training for implementation of civic education among future students. The article submissions may be useful for school teachers, teachers of vocational education institutions, as well as for the preservice teachers.

Keywords: *education system, teacher training, formation of readiness, civic education.*

1. Introduction

1.1 Background

In today's political, economic, social conditions the significance of civic education becomes important like never before. The shift of material and spiritual values, the destruction of cultural traditions, the uncertainty of ethical and legal guidelines, violation of human rights in the country, the lack of democratic legislation, social security have resulted in underdeveloped civic qualities and extreme individualism in its behavior.

Civic education at the present stage is a versatile, multi-purpose, multidirectional educational activity the essence of which is to develop the personality capable to benefit the society while being legally, socially, politically and morally capable (Sokolov, 1993; Grevtseva, 1995; Rostovtseva, 1998).

The main difference of civic education from other fields is its versatility: it cannot be localized only in any one sphere of a person life, so the spatiotemporal boundaries of this process lie within the entire creative activity of the individual including teaching (Vlasov, 1999; Fakhrutdinova, 2001).

To solve the problem of civic education it should be implemented at all levels of education: preschool, school, university. At the same time, the educators should pay special attention to preservice teachers' training in the field of civic education among the children of different ages, as developing a citizen of a law-governed state is largely associated with

the personality of the teacher, his common culture and professionalism.

We consider readiness of the future teacher to provide civic education as an integrative quality of teacher's individuality including values, socio-political, ethical, professional attitudes and feelings, teaching experience, awareness of the theory of children civic education of different age and a system of practical skills necessary for its implementation.

By reference to the educational process structure of higher educational establishments that is a holistic, highly organized mechanism consisting of a number of interrelated components, tutoring the future teachers for civic education awareness can be defined as a subsystem in the larger unit of teaching and educational process. It is supported by the following arguments: first, the reality of civic education existence and its elements, the results; secondly, due to the civic education dependence on the ultimate goals, the third, the system openness to environment ; fourth, the integrity of the phenomenon which in turn causes a certain complexity and hierarchy of the system components ; Fifth, the functioning of the structure as a whole being a part and an element of another whole.

1.2 Literature Review

The problem of civic education of young generation was studied by many scientists. The theoretic foundations of civic education of youth have been discussed in the scientific works of psychologists, teachers, lawyers, philosophers and sociologists in different eras. Thus, the fundamental principles of civic education were considered by B.G.Belinsky (1997), G.Gegel (1990), A.Herzen (1987), N.G.Chernyshevsky (1987) and many other national and foreign philosophers and educators.

The philosophical and social aspects of civic education are researched in the articles by S.I.Arkhangelsky (1980), R.G.Gurova (1981) and others.

The general theoretical foundations were developed by V.N.Vlasova (1999), O.I.Volzhina (1991), G.T.Sukolenova (1997) and others.

The most important components of civic education such as social activity, legal behavio have been studied in the writings of scientists and educators A.V.Ivaschenko (1989), I.S.Marenko (1980), legal scholars N.Ya.Sokolova (1993), A.M.Yakovleva (1969) and others.

Civic education in the context of liberalization and social revitalization of the students were studied by I.M.Duranov (1991), V.M.Obukhov (1986), E.V.Rostovtseva (1998), M.P. Chumakov (1980).

The socio-pedagogical conditions of civic education as integrative personality traits were considered by A.V.Belyaev (1997), A.G.Goleva (1994), R.G.Gurova (1981), V.I.Kozhokar (1975).

The features of civic education in the bringing-up process have been studied: within the social disciplines (Grevtseva, 1995) and humanities (Shiro, 2000; Senina, 1987); in extracurricular activities on history and political sciences (Vasiljev, 1995); in the process of legal education (Izvestnova, 1988); the search activity in memory of the fallen in the Civil War (Sudakova, 1995).

The issues of civic consciousness and civic qualities of the students have been studied by O.V.Lesher (1997), E.V.Romanovskaya (2010), A.M.Faktor (1998) and others.

The education of the future teachers for implementing civic education among the adolescents and schoolchildren has been studied by T.M.Abramyan (1991), N.A.Vakhrusheva (1998), O.P.Pesotskaya (1994) and others.

The analysis of theoretical research and teaching practices has shown that although the problem of civic education is developed in general, however, the issue of the structure and content of civic education is not studied enough at the present stage of social development, as well as the levels and criteria of the development of general readiness of the future teachers to provide civic education consisting of personal, content-related and procedural readiness; a complete, efficient, scientifically and methodically proper system of formation of the general readiness to provide civic education has not been developed.

2. Methodological Framework

2.1 The indicators of teacher's readiness to provide civic education among the students

To explore and identify the ways to address the problem of training the future teachers to provide civic education the concept of "readiness to implement civic education" was specified and filled with a new content (Belinsky, 1987; Herzen, 1987). Readiness of the future teacher to provide civic education is considered as an integrative quality of teacher's individuality aimed at laying the foundations of civic qualities of the personality of different ages including social, ethical and professional viewpoints and feelings. We have identified the components of overall readiness: personal, content-

based and procedural.

2.1.1 The indicators of personal readiness

The indicators characterizing the personal readiness to implement civic education are the following: the students' attitude towards society, the state, social and political phenomena that occur in its activities; awareness of the rights and responsibilities determining ideological views (Vlasov, 1999; Izvestnova, 1988; Goleva, 1994). Personal readiness is characterized by such significant qualities as civic consciousness, civic duty, civic liability, legal and *political culture, personal freedom, social activity, patriotism, national consciousness and tolerance.*

2.1.2 The indicators of content-related readiness

The content-related readiness is characterized by certain scientific, theoretical and methodological knowledge that is necessary to provide the children of different ages with civic education. These indicators include: a scope of certain scientific, theoretical and methodological knowledge required for civic education of children of different ages, awareness of social significance of civic education of younger generation, a sustained interest in implementing this educational work, the ability to plan and forecast the teaching activities, the good master of design, communication and organizational skills (Ivashchenko, 1989; Maryenko, 1980).

2.1.3 The indicators of procedural readiness

Procedural readiness is characterized by practical skills required for implementing civic education of children of different ages. Its indicators include the ability to intelligently select the complex of forms, methods and techniques of civic education of children of different ages; take into account the unified requirements for children presented by teachers, parents and the public; to apply creative approach in the activity that implies complex, variable use of theoretic knowledge and skills; put into practice the principles of the individual and differentiated approaches; anticipate and predict the results of the professional pedagogical activities, analyze one's own experience and other teachers experience introducing it accounting for the specifics of various ages (Sudakova, 1995; Pavlova, 1995).

A combination of personal, content-related and procedural readiness in total create the overall readiness of the future teachers to implement of civic education of children of different ages.

2.2 The structure and content of the system of readiness development of the future teachers in the implementation of civic education

The study has allowed us to develop readiness formation system of future teachers to implement civic education. It consists of interconnected and interdependent blocks which include: planning of the objectives, tasks, a subject, an object, the content, organizational forms and methods, monitoring and the result (Abrahamyan, 1991; Duranov, 1991; Pesotskaya, 1994; Vakhrusheva, 1969). This content is actualized through all the basic forms of educational work in higher education: lectures, seminars, workshops, debates, etc., as well as the students' research work for which we have provided special areas, educational activities, participation in students' union and social life of the university and the city, teaching practice **(Fig. 1)**.

The system is based on the general scientific and general cultural; public and socio-communicative; psycho-pedagogical, subject-methodical; creative and practical components. The content of these components include the cycle of the humanities, social, economic and general professional studies that are organically aimed at creating readiness for implementing civic education. The consolidating element of the system is a special course developed by the author. The most effective means appeared: the learning guides, specialized literature, visual aids (tables, maps, etc.).

3. Results

Introducing the submitted system of training the students of pedagogical specialties to implement civic education has allowed to find out that the students have a sufficient level of personal readiness to provide civic education: they have a general idea of civic duty, civic duties, civic rights. And the level of content-related and procedural readiness cannot be considered satisfactory, due to the lack of focused effort in forming the abovementioned readiness in higher pedagogical education.

Determining the level of overall readiness for implementation of civic education was carried out through the average score over the three criteria that characterize the personal, content-related and procedural side of readiness. The points were assigned from 1 to 5, from very low to high. If the average score appeared in the range from 1 to 2, then the student's level was considered extremely low (I); if from 2 to 3 points, the level of readiness was low (II); If the average score is in the range from 3.2 to 4 points, the level of readiness - medium (III); If the average score is in the range from 4.1 to 5 points, the level is - high (IV).

In general, in the students' groups participated at the control stage of the experiment the overall level of readiness was average with the high level never revealed. The obtained results of the statistical "measurements" of the readiness level in implementing civic education before the experiment are shown in table 1.

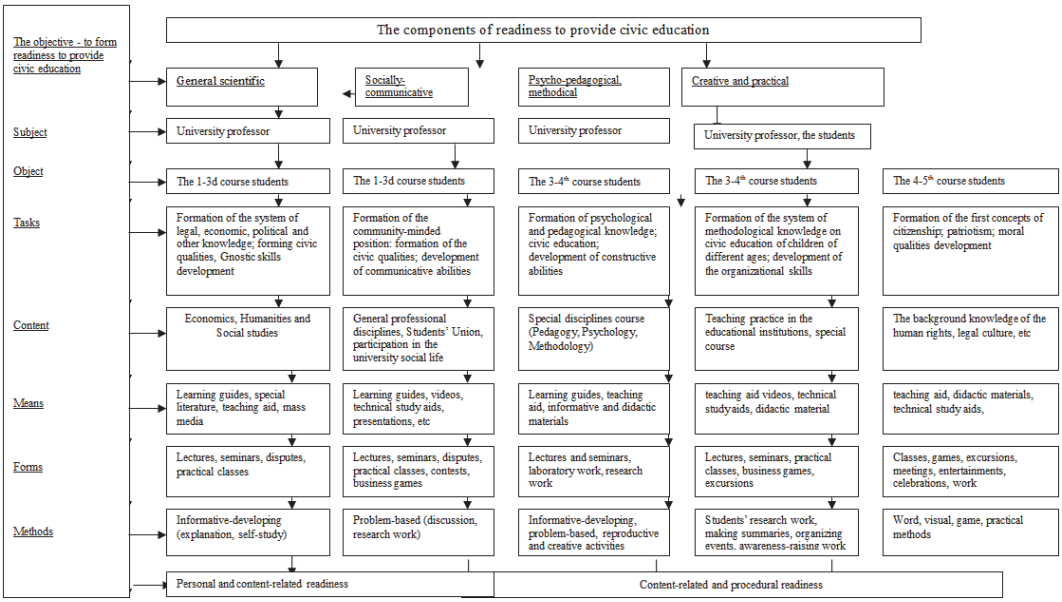

Figure 1. The system of training future teachers to implement civic education

Table 1. The level of general readiness of the students to provide civic education at the ascertaining stage of the experiment

Levels	The experimental group (total – 53 persons.)	The control group (total– 53 persons)
High(IV)	0	0
Medium (III)	25%	23%
Low (II)	58,5%	57,5%
Very low (I)	16,5%	19,5%

The experimental group (the total number of students - 53 people). The control group (total number of students - 53 people)

The findings suggest that the statistically significant differences in the experimental and control groups before the main formative stage of the experiment have not been found.

The efficiency of our simulated experimental system of formation of future teacher readiness to meet the challenges of civic education was verified by the comparative analysis of the results of the ascertaining ("data in") and control ("data out") experiment in accordance with the developed criteria.

The requestioning at the control stage of the experiment and the analysis of the students' research work showed that most students have realized the social significance of civic education of younger generation (78%), they have shown a keen interest in implementing civic education (80%). The results of theoretical and practical parts of testing for the

special course "Civic education of preschool children" have shown that the students plan educational activities on civic education, set targets, tasks and perspectives of this work, know the content, forms, methods on performing civic preschool education with "excellent" (65%), "good" (28%), "satisfactory" (7%) marks. The students are engaged in self-education on the topic of civic education of children of different ages. The number and quality of scientific research on the problem of civic education, has increased, the students voluntarily chose graduate work on the very problem.

The results of the control group are almost identical to the results of the ascertaining experiment throughout all indicators, so we have chosen the data of the ascertaining experiment to help us to visualize the dynamics of positive changes in the process of formation of future teacher readiness to provide civic education.

The comparative analysis of the changes in the students' general readiness to provide civic education in the experimental and control groups before and after the experiment is displayed in the table.

Table 2. The dynamics of the students' level of readiness to provide civic education

	The level of readiness "data in"		The level of readiness "data out"	
	Experimental group	**Control group**	**Experimental group**	**Control group**
High	**0%**	**0%**	**35%**	**0%**
Medium	**25%**	**23%**	**33%**	**23%**
Low	**58,5%**	**57,5%**	**27%**	**57,5%**
Very low	**16,5%**	**19,5%**	5%	**19,5%**

4. Discussions

Despite the fact that today there is much research on the problem of civic education, in our opinion, it remains one of the least studied. The university professors, teachers of secondary and primary schools do not always understand the objectives, tasks, content, tools, forms and methods of civic education of younger generation. At the same time, now more than ever there is a need in formation of teachers' readiness to provide civic education for the younger generation involving bringing up a citizen who is active, sensible, possessing a high level of civic consciousness, civic qualities, feelings and behavior focused on spiritual values. The analysis of the current state of the future experts' readiness, the analysis of psychological and pedagogical literature, the university experience in this field has shown that at the present stage there is also a need in finding the new ways and means to enhance the process of teaching students to implement civic education.

The starting point for the development of this problem has become the analysis of the concepts "civic education", "readiness to implement civic education." The theoretical analysis of the problem has allowed to determine the approaches to the development of future teachers training for implementing civic education.

During the experimental work we took into account the phased nature of the process of readiness formation, so it included personal, theoretical and creative - practical stages.

To obtain the objective information about the level of readiness the following criteria were identified: a personal, content-based and procedural. The indicators that characterize the state of personal readiness for implementation of civic education are: the knowledge of personal rights and responsibilities, the students' attitude to society, the state, social and political events which are reflected in his activities that determine the ideological views; socially significant qualities such as: civic and national consciousness, civic duty, civic responsibility, social activity and tolerance.

5. Conclusion

Therefore, the submitted system of training the students of pedagogical specialties to implement civic education focuses on the particular goal to develop the future specialist's readiness to provide children with civic education. Meanwhile, this system is effective when taking into account the organizational and pedagogical conditions identified in the study. The system content that ensures the achievement of this objective includes general scientific, general cultural, socio - communicative, psychological and pedagogical - methodical, creative and practical components. The system has a phased structure and provides the development of future teachers' readiness to implement civic education from a very low to high one. The peculiarity of the system is that its consolidating basic element is the special course.

The pedagogical experiment has proved that using the system it is possible to form future teachers' readiness to implement civic education as an integrative quality of teacher's personality.

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The Formation and Development Trends of the Consulting Market in Russia

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Abstract

In the conditions of rapid growth of service industries and, above all, business services, the importance of advisory services (consulting) is steadily enhancing for the domestic economy and the growth of its competitiveness. The article analyzes the basic processes occurring in the modern Russian market of consulting services, the trends and patterns of its development, including the growing processes of concentration and centralization, the underdevelopment of market institutions, the lack of legislation regulating this market segment, structural defects associated with the excessive income growth of the management consulting. All this allowed us to draw some important conclusions about the unstable and contradictory nature of the development of the domestic market of consulting, the deformation of its structure and the absence of the state policy in the sphere of regulation of the consulting services market, and to develop recommendations for its stabilization, including the improvement of legislation in the field of intellectual property, the expansion and strengthening of the foreign economic positions of the consulting companies in Russia, the efficiency improvement of their participation in the international division of labor. The article is intended for students studying methods of conducting marketing research on the market of consulting services, teachers of the discipline "Marketing in services", "Consulting" as well as for marketing managers and managers of consulting companies elaborating strategies for their development.

Keywords: *consulting services, development trends, concentration, centralization, structural shifts in the market of consulting services, the types of consulting services.*

1. Introduction

1.1 The relevance of the problem

The rapid development of service industries and the enhancement of their role in the formation of GDP is the hallmark of

the transformational stage of the development of the domestic economy, and the level of development of the services sector is the basic characteristic of the development of a society. The increasing importance of various service industries is associated not only with the dominance of this sector in the structure of the national economy, but also an active interrelation and interpenetration of different service industries among themselves, when the process of convergence leads to new, hitherto not known services (Zvoronov, 2002). Therefore, in this sector the key factors of the economic growth are formed, including intangible assets, and information technology. The degree of development of the services becomes one of the main criteria for assessing the competitiveness of the economies of various countries (Voskolovich, 2007).

In the process of development of market institutions of the economy, the share of services in business is constantly increasing, which include, above all, consulting, the value and volume of which increase significantly as far as the specialization of the business extends, when the involvement of consulting firms begins to significantly affect the growth of company revenues (Tslaph, 2011).

The thriving consulting is able to actively influence the most important areas of small companies' economic growth (Bavina, 2008), including the changes in the structure of their production due to a growing sector of consulting activity in terms of the complexity of the combinatorial satisfaction of their needs in complex highly-professional services related to financial, managerial, and tax problem solutions (Kirina, 2006), sales, and marketing nature (Zilberman, 2006). Additionally, the consulting promotes active growth of the influence of managerial, organizational and economic innovations on the formations of the companies' competitive development strategy, when consulting becomes a tool for strengthening their competitiveness, the sustainable development of the national economy as a whole (Gerasimov, 2008).

On this basis, the trends in the formation and development of the consulting market in Russia seem to be quite relevant.

2. Methodological Framework

2.1 The research objectives

The objectives of the research were to identify the trends and regularities of the formation and development of the domestic market of consulting, analysis of the dynamics of its development, assessment of its contribution to the national economy's GDP, the rationale for the classification of the domestic consulting market subjects, identification of the sectoral preferences of the leading segments of the domestic consulting market, analysis of the main structural changes and trends in the market of consulting services related mainly to the intensification of the processes of concentration and centralization.

2.2 The theoretical and methodological framework

The theoretical and methodological basis of the research was the fundamental provisions of the economic theory, the theory of the services, scientific works of the domestic and foreign scientists on the research of the trends and regularities of the formation and development of the consulting market in the globalization context, the Federal and regional normative legal acts, the official statistical data and the primary data from the economic entities' reporting published in the official press.

The methodological basis of the conducted research was the integrated use of a wide variety of situational, dynamic, comparative, structural and functional, economic and statistical analysis methods.

3. The Results

3.1 The dynamic parameters of the formation and development of the domestic consulting market have been investigated in the crisis conditions using the evaluation index of gross domestic product coverage by the consulting services

The domestic market of consulting services is one of the most dynamic and, at the same time, unstable growing segments of the services sector market.

Table 1. The dynamics of the key figures of the gross domestic product and the scope of consulting services ratio for the period from 2004 to 2011

	2004	2005	2006	2007	2008	2009	2010	2011
Gross domestic product, billion rubles	17027.2	21609.8	26917.2	33247.5	41276.8	38807.2	45172.7	54585.6
The index of the GDP physical volume in percentage against the previous year	107.2	106.4	108.2	108.5	105.2	92.2	104.3	104.3
The amount of the consulting and information services, billion rubles	38.7	54.3	69.8	96.6	123.4	76.9	88.8	103.9
The index of the physical volume of the consulting services, % to the previous year	136.2	140.3	128.5	138.4	127.7	62.3	115.5	117.0
The amount of the consulting services to GDP, in percent	0.23	0.25	0.26	0.29	0.30	0.19	0.19	0.19
The index of the GDP coverage by the consulting services	0.22	0.25	0.26	0.29	0.30	0.19	0.19	0.19

The Source: calculated by the author according to the official data of Rosstat and the "Expert RA" Agency.

According to the data given by us as a result of the calculations based on the official data of Rosstat (Federal state statistics service, 2012) and the Agency "Expert RA" (Ranking, 2012), the development of the consultancy market is characterized by a relatively high dynamics (see tab. 1). Thus, the index of the physical volume of the consulting services, in percentage to the previous year, is significantly ahead throughout the entire period from 2004 to 2011 volume index of GDP. If the latter during the entire period did not exceed 108.2% (2007), the similar indicator for the market of consulting services at its maximum value had been 140.3% in 2005. In other words, the growth rate of the market volumes of consulting services was 5 times more than the similar GDP growth rate for the period from 2004 to 2011 (Ranking, 2012).

Particularly actively in the pre-crisis period up to 2008 the share of consulting services in GDP was growing, the maximum value of which in 2008 was 0.3%, which is 30% higher than the level achieved in 2011. All this suggests that the market for advisory services still has not reached its pre-crisis positions in the importance of the country's GDP.

In addition, the dynamics of the indicators of the volumes and the growth rates of the consulting services market and GDP are characterized by the comparability of their parameters and a specific pattern, which indicates the current relationship and the increasing participation of the consulting services in the development of the country's economy as a whole.

So, to evaluate the role of the consulting market in GDP the index of the GDP coverage by consulting services (Velikanov, 2011) is recommended to be used, which is calculated as:

$$V_{GDP} = \frac{Vc}{GDP - Vc} \times 100\%$$

where:

V_{GDP} – the index of the GDP growth rate coverage by the consulting services;

V_c – the amount of the consulting services.

The performed calculations with the specified index allowed determining that the level of GDP maintenance by the advisory services especially was growing in the pre-crisis period and reached 0.3% in 2008. However, in the post-crisis period, this rate decreased to 0.19%.

The use of the indicator of the level of coverage by GDP consulting services allows a more comprehensive assessment of the role and the importance of this segment of the services market in the economic development, as well as its importance for the formation and development of the necessary infrastructure conditions conducive to achieving and maintaining competitive advantages in various sectors of the domestic economy.

Therefore, the trends in the growth of the consulting services amount arouse the progressively increased attention to the development of this sector of the economy, because of its low intensity, while at the same time with a high level of profitability and intellectual labor. That is why this market is increasingly involving the scientific potential in its sphere and is becoming attractive for investment (Deeva, 2010).

3.2 The preconditions for accelerated development of the domestic consulting market are justified in the modern conditions, including its intellectual and investment attractiveness, as well as the growing demand for energy-saving technologies and industrial safety.

It should be noted that the further analysis of the trends in the formation and development of the consulting market we expect to carry out on the basis of the available official statistics data on 150 leading consulting companies. The

representativeness of this group is quite high, as the total revenues and the income of this group exceed 60% of the total volume of the Russian market of consulting services that allows distributing this information on assessment of the processes happening in general in the country's consulting market.

Thus, in 2011 the total revenue of 150 largest consulting groups in Russia increased by 21% and reached almost 104 billion rubles. All this suggests that the prospects for development of the national market of consulting services are quite positive, and the market conditions are conducive to its development and strengthening.

Most experts associate the positive dynamics of the consulting services market development with the overcoming of the crisis phenomena in the economy in general and the increase of the investment in most sectors of the domestic economy, which boosted demand for advisory services in minimizing the investment risks (Buleev, 2010). In other words, the increase in demand for consulting services is associated with a loss of development opportunities in the period of crisis, and the accumulated pent-up demand during the crisis period got an opportunity to be fully implemented.

The confirmation of this conclusion is testified by the data on the growth of the total revenue of 150 largest consulting companies in 2011. Thus, according to the official rating of the "Expert RA" Agency the highest rates of the revenue growth in 2011 were shown by the advisory companies specializing in the consultations on the organization of production (68%), the aggregate amount of which exceeded 2.5 billion rubles. This type of consulting services is significantly ahead of all the others in the pace of their growth, which suggests about the possibilities to boost the real sector of the domestic economy (Ranking, 2011).

According to experts, the active growth in this segment of the consulting services market is also due to the growing demand for energy-saving technologies and industrial safety, which is considered by many companies as the main points of the economic growth and the compliance with international standards. That is why a growing demand among industrial companies is observed in the field of energy audit and examination of production for compliance with international standards of energy efficiency. These activities are considered as important components of improving their competitiveness.

In addition, an important component of large corporations' competitiveness is the development and preparation of feasibility studies for investment, analysis and expertise of design and estimate documentation, construction and technical audit. Among the major corporate clients of the production consulting, the enterprises of the oil and gas industry can be selected, of the metallurgical industry, electric-power industry and mechanical engineering, which accounted for almost 70% of the total revenues of the largest consulting companies.

3.3 A specific structure of the domestic consulting market has been classified and its most actively developing segments have been identified.

Quite high demand is traditionally pent up for the consulting services of companies specializing in services for personnel management, the revenue growth rates of which in 2011 exceeded 140%, and the total proceeds amounted to 2.8 billion rubles. In the structure of this type of consulting services stand out comprehensive programs of leadership development, as well as evaluation of staff, including automated methods, management case study-tests and tests of professional competencies. Thus there is a reduction in traditional types of consulting services in the field of personnel management, including the creation of management competencies and procedures of management according to the objectives, as well as the development of bonus systems.

The group of dynamically developing types of consulting services is comprised of consulting firms specializing in services for IT-developments and systems integration (23%), tax consulting (21%), strategic consulting (20.5%), consulting in assessment activities (19%), IT-management consulting (18%), legal consulting (13%) and financial consulting (9%) (Nikiforov, 2011).

Most clearly among these types of consulting the consulting in assessment activities and financial advisory services can be highlighted, a relatively high economic growth of which in the last five years has been due to the favorable economic conditions in general. For example, the total revenue of 150 largest consulting companies from the assessment reached 8.5 billion rubles by the end of 2011, and from the financial consulting − 7.97 billion rubles, that is, on the comparable data, the increase for the year at 19% and 9% respectively. In addition, the important factors in the growth of these types of consulting services have been an active cost control, internal control systems and risk management, and also business planning and assessment of investment risks.

Moreover, with regard to the assessment activities, an integrated approach becomes more characteristic, which explains the relatively high income in this segment of services. In addition to the goals of deposits, banks, as a rule, are the sponsors for assessing and monitoring a mortgaged property, including not only inventory but also checking of a lot of parameters up to the quality and efficiency of the collateral. Often, in addition to simple evaluation, the projects include all

the elements of "due diligence" until the technology audit.

Positive dynamics of the development was found in the area of tax and legal consulting; the total revenue for 150 of the largest consulting companies in Russia amounted to 7.49 and to 5.03 billion rubles, respectively. Faster grow the revenues from tax consulting − 21% for a year compared to 12% growth from legal consulting. Activation of these types of consulting services is associated by the experts with the growth of investment attractiveness of such types of businesses as transactions with land and real estate, construction, requiring special attention to the legal review issues, conducting legal proceedings in the areas of taxation, customs, anti-trust and currency regulation, copyright, labor and migration legislation, as well as legal protection of information (Kiselev, Sabirov, 2012).

The demand for legal services and tax consulting today is to a large extent associated with asset transactions, when foreign firms assess their prospects and the exit strategies for entering the Russian market, and the domestic business identifies the growth opportunities due to a synergetic effect (Kirina, 2006). In addition, there is an increasingly active market for mergers and acquisitions in the telecommunications, financial services, and the consumer goods.

The reduction in the total revenue in 2011 was recorded among the consulting companies specializing in services for marketing and public relations (- 29%). However, in general, on this segment of consulting services the total revenue amounted to a relatively small amount, equal to 411 million rubles for the twenty companies, that looks relatively well in the overall ranking of the largest consulting companies (Ranking, 2012). Therefore, a noticeable change in the revenues of one significant player changes the overall picture, as well. On the other hand, the marketing, as the definition of new business development options and the substantiation of investment projects, is often a part of complex projects of strategic consulting and is not separately allocated by consulting companies. The most popular in the field of marketing consulting is to develop marketing and investment development programs with a step-by-step implementation mechanism for obtaining tangible financial and economic results. While the ready and expensive business-strategies developed in the outsourcing regime are becoming less popular (Kurbatova, 2005).

3.4 The sectoral preferences of the largest consulting companies have been identified in the leading segments of the domestic consulting market

The most informative is the sectoral pattern of the total volumes growth of consulting services provided by consulting companies in key sectors of the domestic economy. So, most of the consulting services demand growth accounts for the construction materials industry, the value of which in 2011 increased by 58%. Thus, the increased demand for consulting services by the enterprises in the building materials industry is explained by the need to develop new business models, adequate to the growth of the investment activity in this sector, and also, as a result, by the increased demand for the construction materials. In addition, new development projects are appearing, the solvency of the population is increasing; the import substitution in the low and medium price segments of building materials is strengthening. These factors are forcing the domestic producers to actively engage the consulting firms to improve their competitiveness.

A significant increase in demand for consulting services accounted in 2011 for mechanical engineering (47%), financial sector (36%), construction and development (33%), agriculture (29%), transport sector (26%) and trade (25%).

Relatively "modest" growth rates in demand for consulting services − were less than 20% for 2011 − fall on such sectors as light industry (19%), oil and gas (18%), metallurgic industry (18%), electric-power (13%), pharmaceutical industry (12%), food industry (7%), telecommunication (6%), housing and utilities (4%), health care (3%), chemical industry (3%), public administration (2%), education (1%).

Such sectoral distribution of the growth rates in the demand for consulting services can be explained by several causes of a financial nature that is associated with the traditional lack of funds in such sectors as housing and utilities, health care and education. However, the low demand for consulting services in the domestic chemical industry is due to the fact that the majority of the industry enterprises are developing according to the model of "borrowing" of foreign advanced technology, "delivery" of which, as a rule, is accompanied by a full range of management services, training specialists and the necessary IT - support (Logvinenko, 2009).

3.5 The analysis of the major structural changes has been carried out and the development tendencies of the Russian market of consulting services have been identified.

Quite eloquent conclusions about the current processes of the formation and the development trends of the Russian market of consulting services can be made on the results of the analysis of 150 largest consulting companies' incomes. The analysis of the main structural changes and trends in the market of consulting services shows that more than half of all the income of this group of companies is only for two types of consultancy services – they are the IT-developments

and system integration and the IT- management consulting (Kiselev, Sabirov, 2012).

The second half of the aggregate incomes of this group of the consulting firms − accounts for the other types of consulting.

Relatively high incomes in the field of IT-consulting reflect the traditional trend of development of this kind of consulting services. So, in 2011, the total revenue of the largest consulting companies specializing in software development and IT-management consulting was 53.3 billion rubles, of which 63% accounts for the developers' services and the system integrators, and 37% − for management consulting services.

Traditionally, high consumer demand is for such specific services of IT-consulting as the implementation of information systems for developing the efficiency and producibility of the business, integration and maintenance of management systems on the basis of 1C, IBM, Microsoft, Oracle, SAP; process management of BPM ("business process management suites"), increasing the efficiency of enterprises of any size. The main trend of development of this sector of advisory services is that, according to the experts, a lot of requests over the past year have shifted from the IT-audits, concepts, strategies and optimization of IT management, to the development of systems projects, IT architectures and mobile technologies (Kiselev, Kurbiev, 2010).

The analysis of the sectoral structure of the revenues of the 150 largest consulting companies in the context of the basic sectors of the domestic economy at 2011 year-end (fig. 2) allows us to conclude that almost 40% of the total income of this group of consulting companies accounts for the oil and gas industry and the financial sector of the economy.

These two leaders of the consulting profitability are followed by such industries, in order of decreasing, as electric-power (15%), public administration (9%), telecommunications (8%), transport (6.5%), mechanical engineering (6%), construction and development (5.5%), trade (5.1%), metallurgical complex (4.9%), food industry (2%), education (1.7%) and utilities (1.6%) (Ranking, 2012).

However, it should be noted that the development of the market of consulting services is contradictory. So, despite the significant growth in the revenues, and the revenue increase is observed in almost all the areas of consulting and industries in which they provided services, the market development is inert in nature, and, according to the experts, can lead to stagnation in the worst case.

Moreover, the majority of such consulting services as evaluation, financial management, legal and tax consulting are focused on the growing investment processes, which will lead to increased competition (Pesotskaya, 2006). These same trends are projected for the segment of IT consulting, which accounts for almost half of the volume of the consulting services market which is associated with modernization or modification of the implemented projects, or their support.

3.6 The effects of the structural shifts have been justified in the domestic market of consulting, which are expressed mainly in activation of the concentration processes

The analysis of the patterns and trends in the structural shifts in the market of consulting services allows us to note that its functioning was accompanied by quantitative and qualitative changes. Thus, the rapid growth of the size of the market had stabilized by 2005, and in the subsequent period was characterized by a fairly high turnover and renewal of the participants. This was caused on the one hand by the lack of licensing requirements for this type of activity and the relatively low barriers to entry; on the other hand, the relatively low initial transaction costs of the business organization (Gromova, 2008).

Moreover, it can be argued that in the institutional structure of the consulting services market there have been significant changes associated with the growing trends of concentration and deepening of the consulting companies' specialization. This is evidenced by the data shown in tab. 2.

Table 2. The dynamics of the processes of concentration in the market of consulting services in Russia for the period from 2005 to 2011

	The scope of advisory services, in billion rubles			The growth rates, in percent
	2005	2007	2011	
In Russia	54.3	96.6	145.6	117.9
150 leading consulting companies	37.1	70.3	103.9	147.8
The proportion of the 150 leading consulting companies in total in Russia	68.3	72.8	71.4	-

These statistics and the calculated figures on their basis testify to the ongoing processes of concentration in the market of consulting services in Russia. So, over 70% of the total volume of services in this segment of the market is less than 10% of the total number of the companies operating in it. Moreover, the growth rates of the provided consulting services to the group of 150 largest companies are almost 3 times higher than the similar rates for all the consulting companies in the country.

The research works of specialists and experts in the consulting market (Deeva, 2010, Kiselev and Sabirov, 2012) suggest that one of the major trends of its development was the transfer of the market since 2000 from the phase with a distinct oligopolistic nature and the dominance of foreign firms to the phase of its competitive development with the consistent growth in the participation of domestic companies in it and the achievement in 2010 of almost a parity condition.

In this case, the trend of the consulting business consolidation through varied forms of its mergers and the creation of consortia is observed, the dominant strategy of which is diversification. So, according to the "Expert RA" Agency, in 2007-2008 there were significant mergers in the consulting market of Russia, including the association of the leading consulting groups “IBS” and “Borlas”, the companies "TopS Business Integrator" and "Systematics", "Optima" and "Alpha - Integrator" companies, as well as "REDLAB" and "CompuLink".

It should be noted that the processes of concentration on the consulting market of the country are acquiring a specific form of its monopolization, which is expressed in the formation and development of a relatively new form, which is represented by holding associations, created on the principles of co-operation. The content of this principle is well known; however, in the consulting market it has acquired a form of the cooperative consulting structure as an association for a specified period of intellectual and tangible assets of several companies in the development of complex consulting projects.

4. Discussions

The works of the researchers Bavina P. (2008), Voskolovich N. (2007), Gerasimova V. (2008), Deeva E. (2010), Zilberman M. (2006), Kiseleva S. and Sabirova I. (2012), Nikiforov N. (2011) and others are dedicated to the analysis of the trends in the formation and development of the Russian market of consulting services.

The works of Velikanov N. (2011), Buleev A. (2009), Gromova T. (2008), Zvoronov A. (2002), Kirina L. (2006), Kurbatova O. (2004), Logvinenko M. (2009), Pesotskaya B. (2006), Tslaph V. (2011) and others are dedicated to the analysis of structural developments in the modern Russian market of consulting.

However, a number of issues relating to the classification and structuring of the formation trends and the development trajectories of the domestic consulting market remain poorly studied, as evidenced by the unstable and contradictory dynamics of the consulting market in the country.

5. Conclusion

Thus, the analysis of the formation and development trends of the domestic market of consulting services allows us to make the following conclusions:

- the main trend of the formation and development of the market of consulting services is associated with a positive dynamics, accompanied by unsustainable development, caused by poor market institutions and, above all, the lack of legislation governing this type of economic activity, as well as mechanisms of state regulation of advisory business;
- the basis for the development of the consulting services market in recent years has been the active growth of investment activity in key sectors of the economy, primarily in the oil and gas, building materials industry, construction and agriculture;
- the analysis of the main structural changes and trends in the market of consulting services shows that more than half of its revenues accounts for IT-developments and systems integration and IT-management consulting, reflecting the general trends of computerization penetration in the key areas of the economic life;
- an important trend is associated with the focus of the largest consulting companies on preserving the accumulated skills and maintaining their competitiveness, including through the growth of its employees’ professionalism;
- the need to improve the professional level of their employees has forced the leadership of the largest consulting companies to conduct a reduction in the number of the employees over the last three years at 7 percent, or nearly 25 thousand people;

- -the absence of the state policy in the sphere of regulation of the consulting services market has led to an underestimation of the evolutionary approach to the formation of a civilized market by the largest companies' management;
- the low level and the lack of theoretical and methodological research works in the field of consulting services, which would significantly increase the level and quality of assessing this type of entrepreneurship, as well as its effectiveness;
- in-depth scientific and methodological research of consultancy will help to improve the concept of the consulting services development, including a comprehensive set of goals, objectives, principles of the whole system of consulting services, and aimed at shaping the public policy for regulating this type of economic activity.
- On the basis of the analysis of the current consulting activities the following directions of its development can be provided:
- development of intellectual property institutions and, as a consequence, of legislation in the sphere of intellectual activity, as an important part of the activation of processes to form a civilized market of consulting services;
- development of competition as the most important market institution that can influence the formation of the civilized competitive environment in the field of the consulting activities, stimulating business activity and attracting capital to the consulting market;
- consolidation and expansion of the global competitive advantages of the consulting companies in Russia in providing the consultancy services in the structural sectors of the domestic economy, such as energy, petroleum, petrochemical, gas, transportation, agriculture;
- extension and strengthening of the foreign economic positions of the consulting firms in Russia, improving the efficiency of their participation in the international division of labor.

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Implementation of the Multicomponent Algorithm of the Interdisciplinary Teaching Modules into Liberal Education of the University Students

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Abstract

The importance of the problem presented in the article is determined by the complex of educational strategies, goals and objectives of liberal education of the student - a tomorrow's professional in modern production who shows a new level of cultural identity the main characteristics of which are: awareness of the importance of liberal education in achieving life-plan, self-identification in society and at work; aspiration to make a conscious and decent choice of human values; formedness of consciousness and behavior, readiness to intercultural communication as a combination of competencies of productive interaction with people in the multicultural world. The purpose of the article is to scientifically and methodically underpin the efficiency of the multicomponent algorithm of the interdisciplinary teaching modules in liberal education of the university students. The paper submits the innovative approaches of self-transformation and self-identification of the university students in liberal education in the process of employing a multicomponent algorithm (the target, didactic, organizational - methodological, content-related and procedural components) of the interdisciplinary teaching modules. The article submissions are applicable for the teachers of the Humanities, academic registrars at the social sciences departments of the universities, graduate students and young scientists and students engaged in scientific activities.

Keywords: *multicomponent algorithm, interdisciplinary module, an innovative approach, the individual self-transformation, self-organization of the personality, a method, instructional design.*

1. Introduction

1.1 The urgency of the problem

The creation, use and further development of the advanced technologies in the areas of productive labor, expansion of computer and information technology have challenged higher education to arrange the students' training in the way that would meet the needs of the production and economy sectors, domestic and international labor markets, the Federal

State Education Standards of higher education (FSES VPO) requirements and the students' personal preferences. Nowadays, the state and society expect the future specialists to actively participate in all spheres of economic reforms, enhance social stability, preserve and improve the humanitarian traditions, ideas and values of the multinational Russian culture. But the theory and practice of liberal education of the university students do not fully meet these expectations, as it does not correspond to the contemporary educational models of forming a creative personality with a high level of human culture. In addition, liberal education as a basic component of bringing up cultural values and personal traits of the future experts - intellectuals does not provide efficient interaction with cultural values, ethnic and cultural traditions, styles and lifestyles due to its essential characteristics. The Federal State Educational Standard (FSES VPO, 2009) operating in all higher education institutions of Russian Federation represents a legislative framework and at the same time a model of liberal education which reflects the complete set of mandatory requirements for the educational programs according to the specialties. One of the priority requirements is implementation of modular - competence-based approach at all levels of students' training, emphasis on its importance as one of the most holistic and systemic approach to learning that provides high efficiency and quality of the didactic process. The background ideas of the modular - competence-based approach in liberal education of the university students in our study has become a multicomponent algorithm of the interdisciplinary teaching modules of the Humanities as an important construct of the traditional didactics update: at the level of syllabus it includes in-subject, logically complete teaching elements (a topic, several themes or sections) from various disciplines are integrated to achieve particular educational objectives; at the procedural level - humanization of vocational education; at the level of teaching aids - the design technologies; at the level of educational results - the students' knowledge in liberal arts; at the level of conditions - the educational environment of liberal arts; at the proficiency acievement criteria - the existence, depth, scope of knowledge, the nature and maturity of the spiritual needs, the system of axiological orientations and social norms in various areas of activity, the ideals, the level of students' involvement in self-transforming and self-organizing activities. The practical implementation of the algorithm of the interdisciplinary teaching modules in liberal education (objective, didactic, organizational - methodic, content-related, procedural components) is carried out in a logical sequence of its components step by step: setting the objectives; determining the specific tasks to accomplish the objectives; determining the ways to solve the problems; analyzing the conditions for solving the problems; solving the problems within a particular material. This approach creates a creative educational environment in the learning process that is necessary for the student's self-transformation pertaining to the humanities (Mukhametzyanova, 2013; Sakhieva et al., 2015; Shaidullina et al., 2014).

1.2 The theoretical - methodological novelty of the research

The theoretical - methodological novelty of the research is the scientific underpinning of : 1) an interdisciplinary approach to the design and implementation of the teaching modules in liberal education; 2) the structure and content of the multicomponent algorithm of the interdisciplinary teaching modules.

1.3 The practical implications

The practical significance of the study is determined by using a multicomponent algorithm to modernize the liberal arts syllabus: the working curricula and modular programs drafts, the structure and content of the interdisciplinary teaching modules of the liberal arts, the criteria-based efficiency of the multicomponent algorithm implementation.

1.4 The background of the theory and practice of pedagogy

The theoretical - methodological background of the research includes: the concept of humanization and humanitarization of professional education (Afanasyev, 1986; Volovich, 2006; Nigmatov, 1998); the modern concepts of competence-based approach (Zimnyaya, 2000; Zeer, 1999; Makhmutov, 2000); the conceptual approaches to cultural projects design (Zapesotsky, 2003); the theory of teaching design of the vocational education objectives (Bespal'ko, 1983; Grebenyuk 2001, Novikov, 2003); the concept of project-based learning (Zimnyaya, 2000; Polat, 1999); the theoretical approaches to modeling professional activity (Kuzmina, 2001). The theoretical foundations are expressed in: the key concepts (the multicomponent algorithm, an interdisciplinary teaching module, liberal education, design), the objectives (the present, prospective, reflexive), the principles (traditional ones: the connection between the content of the teaching process and basic concepts and methods, the systematic and logical sequence of the educational material presentation; the innovative ones: problematic and algorithmic character, modularity, dynamism, flexibility, parity, feedback, conscious perspective); in functions (methodological, self-organizing, regulatory that ensures the formation of the students' scientific

worldview; designing corporate customs and traditions of the educational institutions that meet the needs of the students, teachers, professionals of the basic enterprises; overcoming the individual's alienation from society, activities, family by strengthening moral values; the partnerships between the corporations and students, graduates, professors, parents and enterprise specialists), in teaching conditions (basic components of the interdisciplinary teaching modules, design technologies, a set of educational syllabi and curricula, the organizational - methodic structure of the multicomponent algorithm).

2. Materials and Methods

2.1 The methods

To achieve the objectives and tasks of the study we have applied a range of methods: a review of literature (philosophical, pedagogical, psychological, legal, scientific - methodical, subject-related); the study and generalization of mass and advanced pedagogical experience in liberal education of the university students; investigation of the educational, independent, research activity of the students and obtaining quantitative and qualitative materials by observing, testing, portfolio, eidos testing; the analysis of traditional and innovative syllabi, programs, textbooks, teaching materials. The leading research method is a method of designing a multicomponent algorithm of the interdisciplinary teaching module while teaching the students the liberal *arts.*

2.2 The indications and performance criteria for the implementation of the interdisciplinary teaching module in the university students' liberal education

The indicators: the existence, depth, scope of knowledge in liberal arts; the nature and maturity of the spiritual needs; the system of axiological orientations and social norms that can guide in various areas; the ideals, the degree of student's involvement in learning, research, project activities.

The formation criteria of the productivity indicators of the algorithm of the interdisciplinary teaching modules:

- Knowledge (philosophical, political, historical, literary - linguistic, legal, artistic, cultural, etc.). The indicators of presence or absence of relevant knowledge are the traditional and innovative forms of the intermediate and final check, interdisciplinary projects, certification system;
- The needs (communication, self-realization, freedom, understanding, knowledge, love, self-esteem, self-transformation, reflection, understanding the meaning of life and others.). The indicator of assessment of the level of these needs formation is the time it takes a student to satisfy them, as well as quantitative and qualitative indicators of the liberal education competencies;
- The axiological orientations (worldview, socio-cultural, moral, artistic - aesthetic, etc.), the norms, ideals, traditions and values. Their indicators are verbally expressed opinions, students' opinions, behaviors during the implementation of an interdisciplinary unit.

2.3 The methodological materials

2.3.1 Basic concepts

The obtained results have allowed us to clarify the basic concepts of the performed research as a systemic category of pedagogical science enriched with innovative ideas of the interdisciplinary liberal education:

- an algorithm - a stepping implementation of the interdisciplinary communication of liberal education syllabus of the new generation specialists;
- the algorithmic teaching represents a learning process when knowledge is acquired through a consistent and step-by-step performance of logically interrelated interdisciplinary training operations;
- a training module is an organizational - methodical structure of the discipline, which includes didactic, interdisciplinary communication objectives, logically complete units of the teaching material, a methodic guidance and control system;
- an interdisciplinary module is the organizational form of interaction between the humanities, natural science, professionally - important disciplines in order to understand, study and update t liberal education of the university students on the basis of network communication of the interdisciplinary norms, values, invariants, and universals of the scientific world (Budanov, 2013);

- a multicomponent algorithm is an organizational - methodical structure of the reduced learning activities of teachers and students to implement the interdisciplinary teaching modules based on the rules - the requirements of the network communication;
- a project is a prototype, a perfect example of the targeted object, state, an independently manufactured product (service) from its idea to full realization;
- a design is a process of developing real or conventional transformation projects in education; used as a creative technology;
- self-organization is the coordinated development of a student as a subject of education by means of the direct communication and feedback from the process of liberal education (external environment), capable of self-development, self-transformation through interdisciplinary characteristics, informativity, dynamism.

2.3.2 The pedagogic conditions of the multicomponent algorithm of the interdisciplinary teaching modules

The initial provisions of implementation of the multicomponent algorithm of the interdisciplinary teaching modules in students' liberal education in university have become:

- at the syllabus level - the interdisciplinary modules as an essential component of the traditional didactics rethought;
- at the procedural level - vocational education humanitarization;
- at the level of teaching aids - the design technologies in implementation of the interdisciplinary modules;
- at the level of educational results - the students' general culture and liberal education;
- at the level of conditions - a creative self-organizing environment of the interdisciplinary modules;
- at the level of liberal education achievement - applying knowledge; cultural and ethno-cultural self-identification; choosing the interdisciplinary modules as alternatives in liberal education; designing an algorithm of the interdisciplinary modules; readiness for interdisciplinary innovations.

3. Results

3.1 The multicomponent algorithm of the interdisciplinary teaching module as a didactic project of updating liberal education

It is based on the guiding principles of problem-based and design - targeted approach of the students' liberal education reinterpreted with the ideas of self-organization and self-transformation. Every module contains a detailed information about the activity objectives, the structure confirmed by the content of the material being studied and specific diagnostic and design tasks. The content of the material under study represents a complete didactic unit supported with the methodological guidelines, innovative knowledge control system allowing to adjust the learning process. The algorithm establishes and determines the most efficient sequence of modules studying. The teacher designs an algorithm of his own activities in which there are such important for the implementation of the interdisciplinary organizational unit methodological and didactic elements: the objectives of the class, the syllabus, the structure of practical training, appraising the initial level of students' competencies, students' independent work, analyzing and summarizing activities, the classes equipment, literature for the teacher (basic, additional, background, psychological - pedagogical).

3.2 The pedagogic conditions for the multicomponent algorithm of the interdisciplinary teaching module implementation

- If the initial level of the students' competence is determined by means of the targeted, problem-based, project - targeted diagnostic techniques. The diagnostics package is recommended to every student;
- if the preliminary training of the low-performing students to the study of the module had been carried out;
- if the situation of success in learning activities of the low-achieving students (encouraging successes, the use of various methods and techniques of moral incentives) is arranged, if the advanced tasks for high achievers are developed, if the students are aware of the of knowledge quality criteria;
- if the measures to overcome the conflicts between students and teachers are developed;
- if the activities of teachers, group of students, faculties on various basis are integrated;
- if the activities of teachers and the most active students of the group are coordinated;
- if the measures to upgrade the educational environment of the institution, the group, subjects, personal worldview are developed.

3.3 The methodic materials to help students

1. The objectives of studying the interdisciplinary teaching module:
   - Whether the objectives are described through the academic, problem - based, design - based types of activity, what they should achieve as the result of the study;
   - If the specific quality requirements for implementation of the targeted activities are formulated;
   - Whether the significance of the module objectives for all the subsequent modules is explicit, if the motivational characteristics of the educational activities goals correspond the characteristics of the professional activity model.
2. The syllabus:
   - If the syllabus corresponds the learning objectives;
   - If the syllabus system is built according to the educational objectives (basic concepts, regulations, principles, laws, forms, the conclusions and applications);
   - Whether a graphical representation of the system and the structure of the syllabus is built;
   - Whether the algorithm of studying the educational material is determined.
3. The adaptive mechanisms of implementing the multicomponent algorithm of the interdisciplinary modules:

1. If the components of the activity guidance of the module algorithm are accepted as given or developed by the students themselves:
   - the objective (outcome) of the study and the intermediate results of independent actions and their characteristics;
   - a general description of the profession represented in the module, its status and professional ideals;
   - the composition and order of actions (algorithm);
   - the means of action (theoretical and practical);
   - the ways and means of self-monitoring and self-correction in the course and as the result of action (practical and theoretical criteria);
   - the general (unified) mechanism - the instructions and guidelines presented in the form of an integrated system;
   - a sample of performing the actions on the basis of regulations.
4. The educational tasks:
   - if the problems are developed with a sample in order to organize and manage the syllabus acquisition at all stages of the interdisciplinary module algorithm;
   - the tasks of various types: with full, incomplete, redundant and contradictory conditions, with combinations to develop critical thinking;
   - the tasks to develop the ability to underpin the concepts, key provisions, processes and phenomena for stimulating analytical thinking;
   - the tasks of various kinds: standard and not typical, intended for differentiation of the phenomena and processes, their essence to form the expediency of the action (the orientation on the significant);
   - the tasks that require written or oral explanation (report) to form a conscious action;
   - the tasks of “distract ” intended to form the strong-skilled action;
   - the attention tasks to develop the skills of self-control;
   - the "stereotypical" tasks for skill formation (automated action)
   - simulation games - the tasks based on professional role-playing communication.
5. The arrangement of the students’ independent work while implementing the interdisciplinary training module.

If developed (determined, identified, left):
   - the scheme of interaction between the teacher and students as well as between the students only;
   - the basic means of acquiring the learning material and self-organization: the instructions scheme, the system of training tasks with samples geared towards research activities;
   - the means of enhancing and fixing of the individual activity in the process of collective problem solving;
   - the requirements of the target activities parameters which will guide the quality management to achieve goals;
   - special diagnostic tasks for rapid tracing of typical errors and adjusting the current process of the information uptake;
   - the diagnostic tasks with sample solutions for checking and self-control according to the targets;
   - the technical tools of the students’ self-organization;

- a special manual for the students' independent work in classroom and individually;
- a special guidance for classes containing the classes time card and recommended literature for managing independent work at all stages of activity.

4. Discussions

The efficiency of the multicomponent algorithm of interdisciplinary training modules implementation in liberal education as a practical mechanism to implement the conceptual ideas of pedagogy into educational practice of higher school is supported by means of the results of the experimental testing of the special course "The cultural identity of a higher education student." This special course was designed according to the ideas of interdisciplinarity as a network communication of the academic disciplines cycles: the Humanities, Sciences, the professional and special. A multicomponent algorithm in this interdisciplinary communication serves as a methodological, organizational - methodical, target, didactic, content-related and procedural function. The criteria for students competencies achievement, their completeness, structure, volume, consistency, integrity determine the level of design culture and cultural identity of the students that is manifested in: operating the competencies (79%), in designing the socio - professional actions strategy (87%), in choosing the axiological alternatives (76%), cultural self-identification (65%), readiness to change cultural priorities (76%), creativity in the educational, professional and behavioral activities (87%). The achieved data in the control groups ranged 25 - 43%

5. Conclusion

The theoretical and pragmatic importance of the problem under investigation is determined both with the educational imperatives and socio - economic policy and the needs of the labor market: a high demand for highly educated specialists with general cultural and professional competencies outstripping the global standards. The updating of the educational strategies is determined by the identified patterns. In this regard, modernization of higher school didactic structure enriched with the conceptual ideas of implementing the multicomponent algorithm of interdisciplinary teaching modules complies with the objectives and has practical significance for higher education.

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The Curriculum Project on Professional and Pedagogical Teachers' Communication Culture Formation

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Abstract

The changes in the socio-economic and spiritual spheres of modern society, trends in the renewal of the educational process put forward new demands to the level of modern teachers professional and pedagogical communication culture formation. The solution to this problem objectively requires the development of more flexible curricula of professional growth, aimed at the efficient formation of their professional and pedagogical communication culture. In this regard, this article presents the project of the curriculum "Fundamentals of professional and pedagogical communication culture formation", which allowed reveal its effectiveness for teachers who has two years of experience of professional activity. The materials of the articles are of theoretical and practical value for teachers of secondary schools, and for teachers - beginners of high schools and colleges of vocational education.

Keywords: *professional and pedagogical communication culture, the teacher, the content of the curriculum.*

1. Introduction

1.1 The urgency of the problem

For a long time in psychological and pedagogical literature, the communication culture was understood as a technique of communication, and the main emphasis was given to the development of rhetoric, pantomimic, verbal and non-verbal means of communication, models, styles, and so on (Makarova, 2000; Galaguzova, 2001). This phenomenon may be explained by the fact that the existing curricula of teachers professional training on psychology, pedagogy, methodology contain virtually no information either about the features of their professional and pedagogical communication culture, nor the methods of identification of development levels, neither of strategies and models for its development and improvement in the continuous process of professional activity.

1.2 Problems of teachers in their professional activities

Psycho-pedagogical studies and our own observations suggest that untrained teachers are not able to effectively improve of their professional and pedagogical communication culture, because they do not know its characteristics; often use only a quantitative increase in knowledge gained in lectures and not a qualitative change, purchased in practice-oriented training; there is lack of understanding and ignorance of the problems associated with the development and improvement of professional and pedagogical communication culture (Logacheskaya, 1990; Abrosimova, 1998). Significant problems of teachers in professional activity are disclosed by V.I.Baydenko (2003), N.A.Astashova (2001), E.V.Bondarevskaya (1999), V.P.Bespal'ko (1998), Z.I.Ravkin (2000), N.E.Vorob'ev (1992), M.I.Bolotin (2002), G.I.Minskaya (1998), V.V.Kuznetsov (1999), I. A.Zimnyaya (2003) L.G.Korchagina (2007).

The most important components of pedagogical mastery are displayed in the works by N.V.Bordovskaya (2001), L.Gohberg (2002), M.M.Potashnik (2010).

Features and development of pedagogical mastery of future teachers are studied by such scholars as: K.E.Romanova (2010), E.S.Golovina (2005), L.V.Zanina (1994). Therefore, the relevance of the problem suggests the need to develop more flexible curricula of teachers' professional growth, aimed at the efficient formation of their professional and pedagogical communication culture.

2. Materials and Methods

2.1 The objectives of the curriculum

The proposed curriculum "Fundamentals of formation of professional and pedagogical communication culture" implies a comprehensive and consistent work of psychologists, teachers and teachers in the process of entity interaction in the training groups, which identify deficiencies in the development levels of their professional and pedagogical communication culture, provide to evaluation and critical reflection.

The aim of the curriculum is to increase the level of formation of teachers' professional and pedagogical communication culture via the manifestation of the following important professional skills: (a) the development of the components' optimal combination of teachers' professional and pedagogical communication culture (communication and organizational skills, empathy, self-control in communication, group of professionally significant personal qualities of the teacher); b) the effective use of these components in professional activities when building a process of communication; c) critical analysis of the generated level of professional and pedagogical communication culture and constructive definition of new means to their further improvement.

2.2 Requirements to the curriculum

The program consists of three parts of requirements for its content:

1. Considering as the primary material of the basic philosophical, psychological and pedagogical concepts (culture, culture of communication, professional and pedagogical culture, formation, development, formation, and so on);
2. The implementation of an interdisciplinary approach to the development of the main methodological problems' solvingvia the integration of disciplines and by establishing relationships, meaningful interdependencies;
3. The work organization on the basis of educational activity forms diversity in the study course: frontal, group, individual, differentially-group.

2.3 The stages of the curriculum

On the ground, anamnestic stage of the curriculum implementation (monitoring stage, which collects information about the activity entity), information about the professional achievements of teachers is collected, which are determined by high level of development of their professional and pedagogical communication culture.

Second, the diagnostic stage is associated with the individual assessment of formation level of professional and pedagogical communication culture based on the study of the capabilities and peculiarities of teachers, held in conjunction with the psychologist.

At the third stage of work with teachers a major role belongs to teachers, whose task is to generate a higher level of professional and pedagogical communication culture. These requirements are implementedvia a wide range of

pedagogical techniques and methods (the author curricula, individual counseling, training in educational institutions of professional education).

2.4 Content part of the training curriculum

The procedural component suggests the involvement of teachers in independent cognitive and creative work for the study and development of those or other problems, creating opportunities for them to apply knowledge in practice in real conditions of a secondary school.

The teacher was always interested in the ways, methods that would help him to increase his formation as an entity of activity and communication. An important place is assigned to the socio-psychological training (Makarova, 2000; Kuznetsov, 1999). The necessity of introducing the training curriculum is dictated by the fact that the diagnosis or monitoring of the formation and development of professional and pedagogical communication culture belongs to the most important elements of thecurriculum. Therefore, this part of the curriculum is called as a "curriculum - training".

Training curriculum emphasizes the idea of the formation and development of the components of teachers' professional and pedagogical communication culture, and the need to identify all the individual qualities that constitute the internal conditions of the further development of this phenomenon (Romanova, 2010; Zimnyaya, 2004).

The training curriculum includes theoretical and practical parts. The theoretical course outlines psychological and pedagogical components of teachers' professional and pedagogical communication culture formation, the ways of its improvement. Actually the methodological part includes instructions and exercises on the application of individual techniques, games, organization, training classes, courses, etc.

The training curriculum consists of four sections: General questions of professional and pedagogical communication culture"(6 hours), "Diagnosis of formation of teachers' professional and pedagogical communication culture structural components" (12 h.), "The formation of psycho-pedagogical components of teachers' professional and pedagogical communication culture"(8 hours),"The development of teachers' professional and pedagogical communication culture in the first five years of professional activity" (10 hours).

The content of the above enumerated general issues considers different theoretical approaches. In the second section, the proposed methods of diagnosis are based on the concept about the structure of teachers' professional and pedagogical communication culture. Practical exercises include the development of diagnostic techniques, making of some tasks of development curriculum, testing, preparation and discussion of reports.

The curriculum provides:

- the necessity to support the teachers' needs in further professional and pedagogical communication culture level formation improvement.
- ensuring the depth and richness of the curriculum's content.

The content of educational curricula includes: problem solving, aimed at raising the level of teachers' professional and pedagogical communication culture on the basis of the project development; organization of discussions, brainstorming, criteria providing for teachers' professional and pedagogical communication culture levels' development; publications of teachers in scientific journals; the implementation of a "living" professional activities for professional and pedagogical communication culture.

The developed program-training is not the only guidance on the formation of professional and pedagogical culture of the teacher. This curriculum is based on experimental data and tested on a representative sample of teachers. In it, as in any psychological training, there is need to exercise caution in interpreting the results, because the data obtained are not always clear: too many factors affect the results of the training, and they are cannot be eliminated. They include entity past experience; information that entities receive regardless of the training; the impact of professionally significant personal qualities of the teacher, etc. In addition, a collective creative process is often hidden from view and it is necessary to judge on circumstantial evidence.

Scope of training curriculum- 36 hours. It is focused on development of communicative and organizational skills, empathy, self-control in communication, professionally significant personal qualities of a teacher.

Each training session begins with warm-up exercises. If one exercise is not possible for a single lesson, it is continued on the following. During the training it is necessary to keep the following principles in group work: continuous participation in the work of the group; the closeness of the group; the activity of each participant of the training; strict keeping of the principle "here and now"; the confidentiality of information.

2.5 The technological component of the training curriculum

Training of communication traditionally begins with exercises designed to develop skills of friendly welcome.

Exercise 1- "non-traditional greeting", it is aimed at communicative and organizational skills formation. The moderator says: "We are used to the stereotypes. They help us to live, but sometimes impoverish our lives. Let's try to experience new emotions and at the same time develop non-traditional greeting. Maybe someone will offer his own version. We are ready to try."

This is followed by activities aimed at the formation of the self- control in communication, empathy, professionally significant personal qualities of a teacher, which are used as stress relief skills, non-verbal communication development.

Exercise 2 - "Namecard", it is aimed at self-control formation in communication. All participants and coach sit by persons inside the circle. The coach explains the rules and first begins the exercise. Each participant in turn goes in the center of the circle and calls his name, accompanying it with a gesture or a pose. The choice of gesture or posture arbitrary and occurs according the player's wish. The idea is that through this movement was transferred his image. For example, in the center of the circle is one of the participants and calls his name "Anna", illustrating the low Russian bow. Another participant takes the name "Irene" and makes the squat. Using these gestures participators demonstrate themselves, their character, temperament, their "name card". After participant's presenting the group his name, all members of the group talk how they understood their partners in the game. Especially the cases are analyzed in which the person's name does not match the pose, "through which he introduced himself.

After this lesson, comes exerciseaimed at as a stress relief, so mastering the skills of public speaking, development of creative abilities and a number of professionally significant personal qualities of a teacher.

Moderator suggests to discuss the forms of addressing, and to pass the test HAM (health, activity, mood). Using this technique, you can obtain information about the status of participants in extreme conditions.

Exercise 3 - "Secret word". One participant thinks of a word, which he keeps in secret, but tells the first letter. Let us assume that the letter "K". Some of the participants ask a question, for example: "Is this an animal?" or "Is it a part of a word?" Other participants, including one who thought of a word, quickly guess a word that would start on the letter, and which belongs to the class of the objects specified in the question. If the participant who thought of the word is the first who know such word he names the word and the game continues so someone asks new question. If someone says the word that answers the question and starting with the appropriate letter before the participant, conceived the word, the participantannounces the second letter of his word. Again some of the participants ask a question, and all the rest think of a word beginning with two letters that are declared by the participant. The exercise continues until the word is guessed.

Exercise 4 - "Ship". All participants together with the coach are sailing on the ship. The ship sails along the coast, Islands, octopus, the night comes, day comes again, and storm comes. Each participant in turn tells where the ship floats, what is visible around what is happening on the ship, and so on. So they sail some time (about 15-20 turns), and then the coach commands to turn to 180 degrees, and the participants have to repeat all the way to the port of departure, but in reverse order.

Exercise 5 - "Intellectual tournament battle", it is aimed at the formation of empathic listening. All participants are divided into three teams. Each team is offeredthe task according their choice. Teams should not know the conditions of the tasks requested to the other team. The preparation time to answer the questions is 15 minutes. After that time the participants have to answer the questions. All the participants listen to the answer, and then the members of the other teams ask two questions on the same topic to the team that was asked. When all teams will play the procedure of the answers' evaluation starts. The rating ranges from 1 (unsatisfactory) to 5 (comprehensive response). As the answers to the main question are estimated sothe answers to the additional questions are estimated. Assessment of the work of each team is the sum of the estimates of the responses of the participants. Usually that teamwins which will score the most points.

Exercise 6 - "Magnet", is aimed at the development of self-control in communication. All the participants stand in crowd in the corner of the training room. One participant is invited and he is told that he is the biological magnet. All other participants imagine as if they stuck tohoney wall. The "magnet" closes his eyes, straining and beginning mentally pulling someone out of jelly. He who feels, that he is pulled by him, go out from the adhesive mass with speed and with a characteristic sound comes out of jelly and stick to the "magnet". Then they together again close their eyes and begin mentally pull someone else, and so on until all participants will not be detached from the wall and will not stick to the "magnet".

Exercise 7 - "The suitcase of qualities", is aimed at the formation of professionally significant personal qualities of a teacher. Participants one by one come out of the room and the remaining collect him a "suitcase" in which he put those professionally important personal qualities of a teacher that help and hinder him in the development of professional and

pedagogical communication culture. The main rule – put in "the suitcase" an equal number of positive and negative qualities; to specify the qualities that emerged during the sessions. Selected secretary captures on paper the specified qualities. The guy, who filled his "suitcase", can ask any question, if it is not clear that was written by the secretary. A "case" should be given to each participant.

Exercise 8 - "Step-2". The coach announces the end of the training, ask participants to leave the room in turn. The first participant takes a few steps toward the door, behind him the second, trying to copy all the movements of the first and adding to them his own detail. This is followed by the third, copying all movements of the second and adding his detail, and so on, the last comes out the coach, repeating the movement of all participants (limping on both legs, tugging at the neck, bouncing on every third invoice, etc).

Exercise 9 - "Artist 2", aimed at the formation of pedagogical tact. Ask the participants to sit comfortably, close their eyes and mentally to see the forest, as the dark wall rising to the lake, on the shores of which stands the hotel where the training is conducted, to hear the cry of the seagulls and feel the cool evening breeze. Then mentally to identify himself with one of the characters of the picture, with one of the elements of the picture, to feel himself in his place, and at the moment when he manages to do it, to get up and leave the room, telling everyone with whom heidentified himself (for example: "I am a cloud, I float away beyond the horizon", "I'm Lily, I folded the petals and plunged into the water with the sunset', and so on). Other participants must imaginethe picture without this element.

Training exercises should be applied correctly, "dosed" taking into account the individual characteristics and abilities of the participants. Otherwise, you can only achieve the full effect of "maturity" of personal growth.

3. Results

This curriculum was carried out among teachers with experience of 2, 4, 5 years of professional activity.

After training as part of the proposed project in the control and experimental groups were conducted slices for the control experiment, the results of which are presented in table 1.

Table 1. The results of the experiment on the study of levels development of teachers' professional and pedagogical communication culture

Experience	Groups	The levels development of teachers' professional and pedagogical communication culture					
		before the experiment			After the experiment		
		H	A	L	H	A	L
2 years	C	18 %	65 %	17 %	22 %	70 %	8 %
	E	21 %	71 %	8 %	45 %	53 %	2 %
4 years	C	42 %	53 %	5 %	44 %	54 %	2 %
	E	40 %	48 %	12 %	71 %	27 %	2 %
5 years	C	52 %	48 %		48 %	52 %	
	E	45 %	47 %	8 %	76 %	21 %	3 %

From table 1 it is evident that in the control group - 18% of the teachers (2 years of experience) has the formation of professional and pedagogical communication culture at a high level, whereas at average - 65%,at low - 17%. In the control group the development of teachers' professional and pedagogical communication culture occurred in daily teaching activities. So after the experiment here at a high level was 22% of teachers,at average - 70%, at low - 8 %. In accordance with the ratio *x*2 the obtained value is greater than the corresponding table value (degrees of freedom 2), if the probability of acceptable error less than 0.05.

In the experimental group teachers with experience of two years the following results are obtained: a high level before the experiment belonged to 21%, the average to 71%, low - 8%. After the experiment it was: 45%, 53% and 2%. According to the results of the 2*x*the statistical significance is revealed (P < 0, 001), indicating the impact of the experiment in this group of teachers.

Before the experiment in the control group teachers with experience of 4 years high levels were observed among 42% of the teachers, after the experiment it was 44%. 53% of the teachers before the experiment had the average level, then the average level belonged to 54%. Accordingly, before the experiment - 5% of the teachers had low level, after the experiment - 2%. Significant changes in the levels of development of teachers' professional and pedagogical communication culture of this group did not occurred.

In the experimental group the results were the following : high level typical for 40% and 71%; average for 48% and

27%; low for 12% and 2%. The ratio *x*2 shows that it is higher than the tabular index, which indicates a statistically significant change in the forming experiment.

Among the teachers with experience of 5 years professional activity in the control group before the experiment it was 52% and after - 48 % at a high level, and the average level of development belonged to 48% and after - 52%. The changes did not increase, but decrease. In the control group, high level belonged to 45% and after it to 76%, average - 47% and 21%, low - 8% and 3%. Changes at the significance level are of 95%.

The results of statistical analysis indicate that formative experiment proceeds most effectively in the experimental group of teachers with 2 years' experience at a significance level of 99, 99% .

4. Discussions

Experimentally proved, that the formation of teachers' professional and pedagogical communication culture is a dynamic process of the development of their communicative and organizational skills, self-control in communication, empathy, professionally significant personal qualities in the entity pedagogical interaction between teacher and student.

In the control and experimental groups of teachers with experience of 2 years before the curriculum implementation the difference in the increase (in % ratio) of levels development of professional and pedagogical communication culturewas not observed. After the implementation of the curriculum in the experimental group in comparison with the control group, significant changes occurred related to the increase in the number of teachers having a high level of formation of professional and pedagogical communication culture. This age is a sensitive and more favorable for the formation of professional and pedagogical communication culture of the teacher.

5. Conclusion

The implementation of the curriculum "Basics for the formation of professional and pedagogical communication culture" promotes to successful generation of it among teachers with experience of two years. In the control group also the natural development and improvement in the process of pedagogical activity is observed, which indicates the phenomenal world of professional and pedagogical communication culture of the teacher as a pedagogical phenomenon, which in its formation proceeds according to natural laws and requires not so much control from the outside, but much of the account of a psycho-pedagogical components of its formation and adjustment.

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Constitutional Fundamental Principles of National Idea Formation in Russia

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Abstract

The purpose of the paper is the attempt that has been made to reveal conditions and constitutional fundamental principles of national idea formation in Russia, issues and youth policy implementation prospects on the basis of the analysis of the wide range of domestic and foreign sources. Careful consideration is also given to the co-relation of the definitions of "national idea" and "national (state) ideology" and the problems of the state national policy implementation in Russia. It is concluded that every stage of the constitutional development of post-Soviet Russia demonstrated its own state approaches to the solution of the federative and national problems. Federalism as a principle of the constitutional system affects nearly all the spheres of the public relations and also influences the structure and functioning of the government authorities. Ethnic policy is an integral part of the national policy. In addition, constitutional regulation focuses attention on the state policy under the conditions of the multinational state. Particular focus is placed upon the content of State National Policy Strategy of the Russian Federation. Its strengths and weaknesses are also examined .The paper makes out a case for establishing Ombudsmanship for Peoples' Rights in the Russian Federation. Special attention is paid to the role of youth in modernization of the public life.

Keywords: *national idea, state national policy, Russian federalism, national (state) ideology, asymmetry of the constituent entities of the Federation, State National Policy Strategy, Ombudsman for Peoples' Rights, youth policy.*

1. Introduction

1.1 Urgency of the problem

Globalization has been steadily growing in the world. It results in two divisive tendencies. It gives rise to integration of the states into the world community, unification of democratic institutions and processes, mechanisms of exercising state power and political collaboration, on the one hand, and to aspirations for maintaining regional, national, linguistic and confessional characteristics, on the other hand.

In the late 20th century the Soviet system fell apart . The new Constitution of the RF adopted on December 12, 1993 by national referendum laid the ground for creating a new Russian state. It raised a number of problems causing some controversy up to now.

The Russian public, which is at a tipping socio- historical point, is in instant need of the perfect knowledge of the purposes of economic and political changes as well as ideas that can weld a nation to fulfill them (Avakiyan, 1997). As a result, one of the priorities of development of the constitutional Russian democracy at the present development stage has been formation of the common Russian values and overall national idea. It is of key importance for Russia as a multinational and multiconfessional country.

As noted by the researchers, civilized parameters of the modern federalism, including the western one, are mostly set by framing supraconcept of the "post-national society"(Habermas,1996).The backbone central supraconcept in Russia, in one way or another, proves to be a "polyethnic state" (Dzapshba,1999).

1.2 The results of the population perepesi

According to the data of the 2010 All-Russian Population Census, formed on the basis of the self-determination of the citizens, the representatives of 193 ethnic nationalities are resident in the territory of Russia. Most of the peoples of Russia were formed for many centuries on the territory of the present Russian state and contributed to the development

of the Russian art and statehood (Pevcova, Pravovoe vospitanie i formirovanie pravosoznanija v Rossii.*Zhurnal Rossijskogo prava.* 2003. № 10).

The multiethnic formation of the people is emphasized in the Preamble and Article 3 of the RF Constitution which states that the multinational people of the Russian Federation is the vehicle of sovereignty and the only source of power in the Russian Federation (Avakiyan, 1997).

It is necessary to develop a common national idea , common ideology in the unified state for harmonious wellbeing of the economic groups, political structures, social communities. The problem of its legal regulation for Russia is that ,according to Article 13 of the Constitution, ideological plurality is recognized in the Russian Federation and no ideology may be instituted as a state-sponsored or mandatory ideology.

2. Methodological Framewo

2.1 Leading opinion of Russian scientists

The problem of formation of the national idea is considered in many works by domestic political scientists, the critical importance of the mentioned process (Alekseyev et al., 1996), the relationship between the national idea and the state (Khabibulin, Rakhomov, (1999)), the coherent state policy implementation in the sphere, its scientific support (Kovalenko & Goloshumov, (1998)) being underlined .

However there is a lack of consensus of opinion on the content of the national idea in the literature. S.A Avakiyan points out a close connection between the Constitution and national ideology. The Constitution cannot help performing ideological, world-view functions as it "enshrines its own social values system" (Avakiyan,(1997).The constitutional values," being the linchpin of the liberal-democratic ideology", are protected by the state ("Constitutional Law", 1996). In V.A. Chetvernin's opinion, declaring formal equality of ideologies in the framework of the priority of rights of a human being, the Constitution of the RF enshrines the rule of ideology with priority of human rights in the modern sense of the term (Chetvernin, (1997)).

2.2 About the content of the national idea

There has also been a concept of "constitutional ideology" in the literature. As E.E.Barinov notes , " The state must promote transformation of the citizens' constitutional legal consciousness in a spirit of new constitutional ideology"(Barinov, (2001). It seems certain that this term is largely a scientific category. However, it is beyond argument that constitutional ideology must become the basis for the state ideology.

O.I.Tsybulevskaya states that spiritual vacuum in response to destruction of the values system as well as abandonment of the false idea of deideologization require development of the national legal doctrine (Tsybulevskaya, 2001).

As V.A. Tishkov noted, nurturing and cultivating a specific supranational ethnos of the Russian people, that is the Russian nationality, can become a platform for resilience support of the Russian state, maintenance of its unity, integrity and stability, achievement of the national consent (Tishkov, 1995).

It is worth noticing and supporting V.V.Mamonov who mentions that the foundation of the state ideology is supposed to be built up on the values that would be able to unite the Russian people," recall them to a sense of pride and respect to their Homeland, draw the representatives of different strata of the people together in the face of national security threat (Mamonov, 2002).

In the literature consideration is given to the necessity of making the concept of national idea in all the peoples residing on the territory of the Russian Federation not in their own right but "on the basis of the common historical and cultural background and common state language"(Markedonov, 2004) .

Moreover, the national idea is supposed to take into account a multiethnic aspect of the Russian state. The problems of national policy formation are reflected in the works by L.A.Morozova (1995), A.N.Kokotov (1999), V.A. Kryazhkov (2000), S.A. Avakiyan (2000), V.Y.Zorin, T.Y. Khabriyeva (2003) and others. Even so, the formation of the effective state national policy criteria remains relevant to this day.

The target of the research is a full range of public relations emerging during the process of formation and implementation of the national idea and national policy in Russia.

The scope of the research is the content of the constitutional legal regulation of the national idea, principles and fundamental objectives of the state national, youth policy and its implementation practice.

2.3 Methods for studying problems

The scientific analysis is based on the method of dialectical materialism: conception of national idea and national policy as complex political legal phenomena, events in the aggregate of their internal and external relations. Other scientific methods such as historical, structural systemic, functional, comparative, technical and modeling ones contributed to acquiring of interdisciplinary knowledge about the subject.

The analysis of the mentioned problem in terms of structural and functional methods makes possible to draw a conclusion that national idea and national state policy are an integral attribute in the federal state system, reflect a certain type of interrelations as state policy elements , have an impact on the formation and implementation of the youth policy.

The technical approach through the theoretical analysis provides an insight into the content of the statutory acts regulating the state national policy, facilitates systematization of knowledge and realization of the findings of the research in the legal notions and categories, reveals defects and imperfections in the constitutional regulation of the national relations.

3. Results

Categorical analysis of the problems being investigated allows to draw a conclusion that the terms "national idea" and "national (state)ideology "are not identical. If a state is democratic, its national idea can be embodied in the state ideology and the latter can reflect its national idea. In case of the totalitarian regime, the ideology imposed by authorities might not express the will and interests of the people, be inconsistent with the national idea.

National idea affects spiritual foundation of the constitutional system of the country, is intended to integrate individual and collective interests of the people, territorial and religious communities. It is the constant that is able to provide stability in the dynamics of inconsistent social relations.

Yet, it should be taken into account that it is the Russian element of the unanimity, economy, culture and psychology that appears to be largely determinant for different ethnicities and the whole state. Though every ethnos has their own traditions they all are fellow-countrymen, representatives of the united multinational people of the country " united by a common fate on our land ", preserving "the historically established state unity" (The Preamble of the RF Constitution).

While analyzing legal regulation in the sphere of federative relations from the date of adoption of the RF Constitution until today several stages can be distinguished and specific state approaches to solution of the federal and national questions during each of the following periods.

3.1 Stages of solving the national question in Russia

The first period (1993-1999) is a fledgling stage or a period of modern political and legal Russian federalism structuring. It was characterized by fuzziness of legal and regulatory distribution of joint competence matters between the federal centre and subjects of the Federation, ambiguity of financial and funding base of the corresponding competences, a lack of explicit legal regulation of the federative liability forms. As a result, consistency of common legal framework was violated, effectiveness of the performance of the state power federal bodies and bodies of state power of the subjects of the Federation was negated, living conditions worsened.

The second period (1999-2003)is a stage of consolidation of the power unity and Russia's executive vertical power structure. The problems of the prior period remained relevant. A number of bodies of state power of subjects of the Russian Federation unilaterally kept on taking steps violating consistency of common legal and economic framework of the country. The country's President initiated a number of Russian federalism consolidation measures such as legislative regulation of liability institution of the elected persons of the RF subjects for the actions infracting the Constitution; introduction of the institution of Presidential Plenipotentiary Envoy to the federal districts; development of the enforcement of the RF Constitutional Court's decisions mechanism concerning holding unconstitutional the regulatory enactments of the subjects of the Federation which contravene Federal law. During this period attention was also paid to the state national policy and problems of its implementation in the North Caucasus.

The enforcement of Art.72 of the RF Constitution put on the agenda an issue of separation of powers between the public bodies of the federal, regional and local levels. Consolidation of the executive vertical power structure and activities of the Presidential Plenipotentiary Envoys in the federal districts on the formation of the common legal framework resulted in the events when in 2002 the Russian Federation finally became a constitutional Federation recognizing the absolute priority of the RF Constitution in relation to the agreements for the division of subjects of authority and powers between

the bodies of state power of the Russian Federation and bodies of state power of the subjects of the Russian Federation. Federal Law dated October 6,1999 "On General Principles of the Organization of the Legislative (Representative) and Executive Bodies of State Power of the Subjects of the Federation " was amended by alterations and additions with Federal Law dated June 4,2003.The issues which are related to the powers of the bodies of state power of the subjects of the Russian Federation on joint competence matters and administered by these agencies on an independent basis from the budget of the subject of the Federation were also defined by the latter. Moreover, a new procedure for making agreements for the division of subjects of authority and powers between the bodies of state power of the Russian Federation and bodies of state power of the subjects of the Russian Federation was established. It stipulates approval of agreements by federal laws.

The third period (since 2003 up to present) is a stage of centralization or federal centre dominance. This is a new period of federative relations development. By this time most of the subjects of the Federation had signed agreements for termination of the agreements for the division of subjects of authority and powers between the bodies of state power of the Russian Federation and bodies of state power of the subjects of the Russian Federation as they conflicted with provisions of the Constitution. Development and realization of the national projects conditioned the need for integration of the subjects around the federal Centre and distribution of the liability of the tiers of authorities in the sphere of social assistance. During this period a process of consolidation of the subjects of the Russian Federation has started.

Federalism as a principle of the constitutional system has a certain effect on the sphere of economic, political, ethno - cultural and other relations, influences the structure and functioning of the state power agencies at the federal, regional and local levels.

In view of multinationality of the country, national policy has always played a very important role. The significance of the national policy appeared to become apparent during the period of great social upheavals one of the most tragic of which is the Great Patriotic War (1941-1945). The utopian ideas of the Bolsheviks deprived fellow citizens of a sense of nation and Motherland, forced them to experience a reasonless pang of guilt for pre-revolutionary Russia that was thought to have been "a prison for the peoples". Just before the end of the war the authorities of the USSR ventured upon ideological revolution.

It is impossible to overstress the importance of the national idea during the period. As it was necessary to mobilize national and spiritual resources of the peoples of the USSR against the Nazi invaders, during the war under the conditions of the growing Soviet patriotism the national historical factor did strengthen. It was the period of the Great Patriotic War when the Soviet government smoothed relations with church and the clergy including alfaquis, dissolved Comintern, rejected "The Internationale" as a state hymn of the country. Strong emphasis was placed upon promotion of patriotism in the national republics of the USSR. Patriotic propaganda was realized in two ways: on the nation-wide and republican levels (Abdulatipov, 2000) .

Constitutional framework of the present state national policy of the Russian Federation were embodied not only in the Preamble to the Fundamental Law but in the first, second and third Chapters of the Constitution (P.3 Art.5, 9, P.2 Art.18,26, p.3 Art.68, Art.69,Cl."c" Art.71, CL. "b", "n" Art. 72 of the Constitution of the RF).

4. Discussion

Equality of the subjects of the Federation is one of the fundamental principles of federalism related to the constitutional provisions on the democratic aspect of the state power and legal state guarantying recognition, loyalty and protection of human rights and fundamental freedoms on the whole territory of the state.

Asymmetry certainly is not the evidence of inferiority of the federative model of the state structure. Its negative effects largely begin to appear only under the unstable conditions of the political system, during the period of aggravation of socio-economic problems, disruptiveness of informative and socio-cultural space. Limited in time political and legal transformations and search for the best model of the division of subjects of authority and powers between the bodies of state power of the Russian Federation, bodies of state power of the subjects of the Russian Federation and local self-government make the asymmetric federation model unstable.

Unfortunately, experience has shown that the subjects of the Federation in their own constitutional and other legal acts successively stood up for their own statehood. For instance, the Constitution of most of the subjects of the Federation, that form parts of North Caucasian Federal District and the Volga Region Federal District, subsequent to the Federal Constitution (P.2 Art.5) make possible to include the definition "republic is a state within the Russian Federation" in their texts. Then in Art.1 of the Constitution of Republic of Tatarstan dated November 6, 1992 amended on November 22 2010 contrary to the legal views of the Constitutional Court of the RF there is a statement that says "sovereignty of Republic of Tatarstan is expressed in the possession of full state power outside the limits of authority of the Russian

Federation and the powers of the Russian Federation on issues under joint jurisdiction of the Russian Federation and the subjects of the Russian Federation, the subjects of the Russian Federation and "it is inherent wholesomeness of Republic of Tatarstan ".

4.1 Characteristics of the subjects of the federation

The republics of the Russian Federation adopted their own laws on symbols (for example, Law of Republic of Bashkortostan dated 06.07.1999 N10-g (amended on 30.04.2010) "On state symbols of Republic of Bashkortostan ", Law of Republic of Mari El dated 30.11.2006 N 68-g (amended on 08.06.2011) "On State Emblem of Republic of Mari El and State Flag of Republic of Mari El").Similar laws have been adopted and enforced in Tatarstan, Kalmykia, Chuvash Republic and other subjects of the Federation. However, the regional law-makers do not take into account the fact that the symbols of the subjects of the Federation are not emblems of statehood and are not identical to state emblems . They should be named official but not the state symbols of the subjects of the Russian Federation.

On December 19, 2012 a new Russia's National Policy Strategy through to 2025 was approved by RF President's Executive Order. It replaced the Concept of the same name of 1996 which was in force in the territory of the country for sixteen years.

Adoption of the Strategy provides evidence of strengthening of the state constituent in the sphere of regulation of interethnic relations. The Strategy is a current political and legal document taking into account globalization aspects as well as economic, migrational, socio-cultural and demographic processes on the territory of the Russian Federation. The document was adopted in the framework of the state activities on strategic planning and has comprehensive inter-branch nature.

Nevertheless, this document cannot be considered perfect. Specifically, not all the bodies of state power and government officials, that are responsible for Russian state national policy implementation, are noted in it. In addition, forms and methods of interaction between the bodies of state power, local self-government and civil society institutions in the sphere are not made clear. Moreover, the section defining the criteria of implementation effectiveness of the National Policy Strategy as well as the section enabling to identify the main characteristics of the interethnic relations state, namely the interethnic tension level in the country etc. , by special indicators are not included in the document (Zametina, 2013).

The problem is that the legal acts of the subjects of the Federation in the sphere of national relations regulation, that are intended to develop and specify the federal Strategy, are rather inconsistent. In some subjects of the Russian Federation there are documents adopted in between 1995 and 2000 that are still in force now (for example, Udmurtian Republic, Sverdlovsk Region). In other ones there are Implementation Plans and State Programs on implementation of the National Policy Strategy through to 2025that are being adopted (Altai, Chuvash Republic, Republic of Daghestan, Kabardino-Balkarian Republic). Yet, the forms of participation of the bodies of state power of the subjects of the Russian Federation in forming legal, organizational and socio-economic foundation of the national relations at the federal level are not always determined.

Special consideration should be given to youth policy that forms the basis for modernization of different public spheres affecting the formation of the common national idea. Our research conducted in 2012-2013 enabled to reveal a number of significant trends and determinants of youth social development. On the basis of them a conclusion about the shift of its development vector can be made. The process of preferential stagnation of the development indicators, that was characteristic of the period of total uncertainty in the 1990s, started to change its orientation towards positive trends. It led to the increase of the level of income in most young people; a visible tendency towards stabilization of youth employment in the main spheres of production; a positive shift of their orientations from childless families to ones with dependent children; growth of appreciation of education and professional qualification among them; youth support of the current policy and growth of confidence to the federal bodies of power; changing of the emotional state of youth, gradual substitution of fear for feeling of hope and confidence; overcoming a risk escalation peak in the social development, in the well-defined tendency of its localization; efficiency of self-regulation processes and expansion of self-organization in their environment.

5. Conclusion

In our opinion, formation of the Russian nation as a single historical community has not finished yet. The term "Russian nation" in that case is used in the ethatique meaning , not in the ethnic one. The Russian nation should not be considered as a conglomerate, mechanically unified community of particular ethnos living in the territory of the Russian Federation.

This is the single socio-cultural formation based on the interethnic interaction and established in consequence of the long historical development within the boundaries of the Russian state. It is the reasonable national policy oriented to the interethnic integration and general civil consolidation of some certain representatives of the ethnic communities that enables to ensure their well-being and development. Humanistic ideology, nurturing of respect to the Constitution of the RF and laws, consistent implementation of the democratic values and institutions, formation of the affirmations of the tolerant consciousness will contribute to strengthening of the unity of the Russian people and state and creating common communicative environment .

Differentiation of the institution of the Human Rights Commissioner of Russia, specifically, establishment of job titles such as Children's Rights Ombudsman, Business Ombudsman, actualizes the issue about further empowerment of establishing the corresponding human rights bodies. The point at issue is that a new job title of the Peoples' Rights Ombudsman in the Russian Federation should be established.

Development of this institution at the regional level requires adoption of Law "On the Peoples' Rights Ombudsman in the Russian Federation" at the federal level or , at least, , actualizes the issue about the revision of Art.5 of the Federal Constitutional Law of February 26, 1997 "On the Human Rights Ombudsman in the Russian Federation".

Incorporation of a new mechanism , the Peoples' Rights Ombudsman, into the system of the bodies of state power and officials will promote protection and restoration of the peoples' rights in the sphere of their national cultural development; guarantee of equality and self-determination of the peoples; resolution of the " interests conflicts" of state, business and ethnos; prevention of the interethnic conflicts; legal enlightenment and legal culture awareness raising among citizens and officials.

Interethnic relations affect the interests of individuals as well as the Russian society and state in general. Effective national policy is one of the fundamental elements of national security of the Russian Federation. Interethnic conflicts and ethno separatism are able to undermine the foundation of the constitutional system, lead to the massive violations of individual rights and institutions of the civil society.

The research confirmed that objective alterations in the society play a core role in the changes in the social status and motivational sphere of youth awareness. The shift from uncertainty to sustainability is related to the resolution of some contradictions and at the same time creation of the new ones. In terms of youth their nature is rather formal and is determined by more general social determinants while the specific manifestations among young people often become unpredictable and spontaneous in nature. As a result, it becomes necessary to monitor the changes in the youth sphere on the regular basis.

1. During the transition period there have been contradictions between different components of the social status in young people, prolongation of social youth marginalization caused by external factors in institutional nature. These latter largely are survivals of the uncertainty and instability period in the society.
2. Needy youth rates have remained constantly high and even there has been an upward trend in the sphere. Problem solving is closely connected with the programs on advance in living standards of the population in general. In this regard some provisional measures are necessary to introduce. Income-earning youth support should be provided by a large range of measures for youth empowerment of realization of personal potential at work as well as by advance in their social and legal protection level. There are good reasons to link supplementary students material assistance with greater education accessibility. Young families material assistance should be provided ,most significantly, by solving their housing problems.
3. The percentage of idle youth has continued to be high .This category includes the unemployed and those who do not work or study. What is more, most of them do not have any education background or professional qualification. Accounting for it they refer to their unwillingness to work for peanuts. Although these forms of the idle category are clearly different , it is evident that their consequences for young people are equally dangerous. Hence, there should be particular employment programs for these youth categories that took into account the specific nature of different idle category motivations.
4. It seems likely that clear redistribution of youth employment throughout the production spheres (its percentage decrease in the material production and increase in the distribution sphere and intellectual production) is linked to differential share of the private sector in these spheres and different payment for labor. In terms of economy and social field, unregulated labor outflows from the material production sphere can hardly be justified. Unless the necessary complex measures, mostly economic ones in nature, to regulate this process purposefully are not adopted, reproduction of the state industrial potential can be put in jeopardy.
5. Appeal of agricultural production for labor youth has not increased due to the extant programs in the framework of the corresponding national project. Youth outflows have become significantly active in this sphere for the last few years. It seems to be necessary to work out supplementary measures developed to

increase youth involvement in developing agribusiness. The corresponding labor ethics has not been formed in the consciousness of young people since the market relations transition period. It was finally evident that in this issue spontaneous market self-regulation proved useless. It is impossible to make a breakthrough to sustainability in the country without extensive public discussion on the issue accompanied by economic and social measures.

The main conclusion to be drawn from the research is that the Constitution of the RF enshrines the rule of the human rights priority ideology as one understands them today. It is impossible to return to the old dogmas during the process of the emergence of a new federative state. A new national integrating idea is necessary. It should be based on democracy, citizenship, patriotism, interethnic peace and the unity of the multiethnic people.

Reforming processes within the Federation, changing geopolitical situation and the measures for state management improvement taken by the government require farther development of legal regulation in the sphere of national relations in the Russian Federation.

6. Recommendations

Materials articles of value to government officials, young scientists who are developing documents and laws on youth.

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Development Dynamics Study of Professional and Pedagogical Culture of Communication in Professional Activities of Teachers

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Abstract

Teachers and students entities interaction implementation in the educational environment of the school requires the high level of professional and pedagogical communication culture formation of modern teachers. In this regard, this article is focused on the dynamics study of teachers professional and pedagogical communication culture development. The results of the experiment presented in the paper show the dependence of psychological and pedagogical components development level of teachers professional and pedagogical culture of communication on external factors - their professional activities experience. The article can be used in the process of professional training and retraining of teachers to form the high level of professional and pedagogical culture of their communication.

Keywords: *professional and pedagogical culture of communication, teacher, formation and development, professional competence, components, experience of pedagogical activity.*

1. Introduction

1.1 The urgency of the problem

In the educational process at least usually two entities - learner and teacher participate. And the connecting link in this process is communication. The productivity of pedagogical activity is largely, if not entirely, determined by the level of pedagogical communication technology knowledge of the teacher (Kavdangalieva, 1999; Labutova, 1990; Sakhieva, 2015). The analysis of pedagogical practice shows that many serious difficulties in training and education problem solving arise because of the teachers' inability to organize the communication with children. No matter what kind of training and education methods were used, the teachers' influence on the students' identity is available only through the live and

direct communication with them. Hence, the importance of teachers' professional and pedagogical communication culture development is very urgent.

Professional and pedagogical culture of communication as a unique characteristic of teachers' professional activity is varied in their manifestations and integrated of communication culture, professional culture, pedagogical culture.

1.2 Analysis of teachers' survey

Analysis of the teachers' survey results shows that they are not familiar with the concepts of "professional culture of teachers" and "professional and pedagogical culture of communication", do not have clear ideas about their components, and do not have sufficient command of self-development skills. Professional teaching culture is considered as a "gift of God" by the majority of teachers, it is associated with the inborn qualities of the individual (Slastenin, 2008; Leontiev, 2003).

1.3 The essence of teachers' professional and pedagogical communication culture.

Under the professional and pedagogical culture of communication we understand one of the most important characteristics of teachers' professional culture as a coherent system of interrelated psychological and pedagogical components, including communication and organizational skills, empathy, self-control in communication, professionally important personal qualities of a teacher.

The development of professional and pedagogical communication culture as a dynamic multi-functional formation in the structure of teachers' professional culture is carried out in the entities cooperation, which is directed on the students' development as the entities of cognition and communication (Grishnyaeva, 2000; Kavdangalieva, 1999; Telegina, Galimova & Masalimova, 2015). In this process, the teacher organizes this interaction with the students and the students interaction with cognition subjects, which is an independent process of their cognition of knowledge, of the properties and relations of objects, conditions of their origin and transformation.

1.4 Literature Review

Professional and pedagogical communication culture, especially of young teachers, in most studies was seen as something formed at the stage of training or something that requires further formation at the stage of professional retraining. In educational research mainly issues of formation of communicative culture are taken into consideration (Avvo, 1999; Grishnaeva, 2000; Ivanov, 1983; Kavdangalieva, 1999; Kunitsyina, 2001; Labutova, 1990; Mendjeritzkaya, 2001; Sherbakova, 2006; Faller, 2000 and others). Only in a few studies teachers professional communication culture is considered in the context of its entity (Abulhanova, 1994; Leontiev, 2003; Lobanov, 2004; Slastenin, 2008; Slobodchikov, 2013; Shchurkova, 2002 and others). However, the development of professional and pedagogical communication culture as a holistic process that occurs in the entity space of the teacher and the pupil continues to be poorly understood pedagogical phenomenon. In this regard, it becomes relevant to study the process of teachers' professional and pedagogical culture formation in entity interaction.

2. Materials and Methods

2.1 The purpose of the experiment

The purpose of the experiment was to determine the level of professional and pedagogical communication culture, forming in the process of professional development.

2.2 The hypothesis of the study

At the pilot stage a hypothesis was proposed that the development dynamics of teachers' professional and pedagogical communication culture depends on following psycho-pedagogical components development: communication and organizational skills; empathy; self-control in communication; professionally significant personal qualities, including pedagogical objectives, pedagogical thinking, pedagogical orientation, pedagogical reflection, pedagogical tact.

2.3 The participants of the experiment

In the process of ascertaining experiment 610 persons were surveyed, 170 teachers who had 2 years of work experience, 190 - four and 250 teachers - five years of work experience at school.

2.4 Experiment Methods

For diagnosis the following methods were selected:

1. The method for communicative and organizational aptitudes assessment by V.V.Sinyavsky and B.A.Fedorishin (1980).
2. Method of evaluation for teachers' ability to empathy by I. M. Yusupov (1994).
3. Methods of self-control assessment in communication by M. Snyder (1987).
4. Assessment method for teachers' professionally important personal qualities by F.G. Mukhametzyanova (2002).

2.5 The methods' content and focus

The main criteria when choosing methods were: being high informative; being economical for time necessary to conduct research; being reliable; being ease for implementation. We relied on techniques to get an idea about the level of teachers professional and pedagogical communication culture development through the study of the following psychological and pedagogical components: communicative and organizational skills, empathy, self-control in communication, teachers' professionally important personal qualities.

The chosen methods were used not only for diagnosis of professional and pedagogical communication culture, but also for its development. This fact is very important for a system of personality-centered education. Let's give a brief description of the methods used.

The method for communicative and organizational skills assessment is used to diagnose teachers' potential abilities. It is based on the principle of self-analysis and evaluation test of his behavior features, of organizational and communicative abilities manifestation in different situations. Organizational skills are manifested in the ability to influence people for certain tasks successful solution and specific goals achievement, as well as in the ability operatively understand the "situational interaction of people and direct them to perform social work. Teachers' communication skills are characterized by their ability quickly and easily to establish business and friendly contacts with people, desire to expand the scope of communication, desire to participate in social or group activities, which satisfy people need with a wide, intense communication.

The analysis of the communicative and organizational skills allows us to take into consideration their structure, identify such components, which can be indicators of their respective abilities. The method finds only the actual level of communicative and organizational skills development in a given period of teachers' personality development. They will not remain unchanged in the process of further professional development of teachers. If there is a big motivation, commitment and proper conditions for professional activity the development of these abilities can move to a higher level.

Method for teachers' ability to empathy evaluating by I. M. Yusupov (1994) was designed to study empathy, the ability to put oneself in the other person's position, to arbitrary emotional responsiveness to other people feelings. Empathy is the acceptance of those feelings that are being experienced by one another as if they were our own. Empathy helps to balance the interpersonal relations of the teacher and makes his behavior socially and culturally determined.

Methods of self-control assessment in communication by American psychologist M. Snyder (1987) is used to determine the ability for self-control in communication.

Methods of identification of teachers' professionally significant personal qualities is used to identify the level of such qualities' development as pedagogical tact, pedagogical orientation, pedagogical thinking, pedagogical objectives, pedagogical reflection.

3. Results

3.1 The results of an experiment conducted with teachers, who has 5 years of experience

In the process of studies, we have obtained the following data. Teachers with experience of 5 years (the sample of 250 people) on the test "Communicative and organizational skills" showed the following results: 24% have a very high level of

communication skills' development, 24% - high, 16% - average, 16% below the average, and 20% - low. In general, the majority of teachers with five years of experience manifests communication skills at the intermediate level.

When studying teachers' organizational skills it was revealed that 28% of them have a very high level of organizational skills' development, 28% - high, 24% -average, 20% - below the average, low level is missing. Thus, teachers with experience of 5 years have well developed organizational skills, which characterize them as entities of communication.

Scores on "Empathy" test show that teachers in this sample have well-developed empathy: 72% of them have a medium level of empathy development, 4% - very high and 24% have high level of empathy development. The low level of empathyis not observed.

On "Self-communication" test the majority of teachers (52%) have high level of self-control development, 48% - the average, then, it is fairly well developed self-control. Low self-controlling their communication is not detected.

A high level of pedagogical tact and pedagogical thinking development belongs to 96% of the teachers, average - 4%. All teachers have high level of pedagogical orientation development. A high level of pedagogical goal setting development belongs to 88% of the teachers, average -12%. High level of pedagogical reflection development was detected in 92% of teachers, average - 8% of teachers. In general, all teachers with experience of five years have high level of all groups of teachers' professionally significant personal qualities development.

Thus, it can be concluded that teachers with five years of teaching activities experience are characterized mainly by high level of professional pedagogical communication culture development.

3.2 The results of an experiment carried out by teachers with 4 years of experience

The diagnosis results of teachers with experience of four years (sample 190) revealed that 36.8 % of them have very high level of communicative abilities' development, 10.5% - high, 26.3% - medium, 10.5% - below average and 15.9% - low. In general, most teachers' communication skills are developed well. Very high level of managerial abilities' development belongs to 5.3% of teachers, high – 15.9%, medium - 26.3% and low - 42%. Test "Empathy" test showed that all the teachers who has fourth years of work experience have an average level of empathy development. Test "Self-communication" revealed that the majority of teachers (53%) have the average level of self-control development, 26% of them - high and 21% - low.

The method of "Teachers' professionally significant personal qualities identification revealed that 95% of the teachers in this sample have high level of pedagogical tact development and the rest of them- average. All teachers demonstrate high level of pedagogical orientation development. High level of pedagogical thinking development was diagnosed in 84% of teachers and average - 16% of the teachers. High level of pedagogical objectives development belongs to 79% of the teachers and average - 21%. Almost all teachers demonstrate high level of pedagogical reflection development (95%) and 5% - average. In general, high level of all professionally significant teachers' personal qualities development is found in 95% of the teachers, and average – in the remaining 5%.

The results generalization of the diagnostic experiment allows us to conclude that the majority of teachers with a four-year experience of pedagogical work shows the average level of professional and pedagogical communication culture development. The most important quality for them is empathy as a manifestation of sensitivity, empathy, compassion for people.

3.3 The results of an experiment carried out with teachers with experience of 2 years

The test results of teachers with two years of experience (the sample 170 people) revealed that only 12% of the teachers have very high level of communicative abilities development, 18% - high, and 29% - average, 12% of teachers - below average and 29% - low. Very high level of managerial abilities development belongs to 5% of teachers, high-and middle – to 18%, below the average – to 23%, low – to 36%. Most teachers (82%) have an average level of empathy development, 4% - high, 6% - low. More than 65% of the teachers show the average level of self-control development in communication, 29 % of teachers - high and only 6% - low.

The testing process revealed that 88% of teachers have high level of pedagogical tact and pedagogical orientation development, the rest have indicators at the secondary level. Basically, 53% of teachers have high level of pedagogical thinking development, 47% - the average. More than 53% of the teachers have medium level of pedagogical goal setting development, and 47% - high. High level of pedagogical reflection development belongs to 94% of the teachers interviewed, the average to the rest.

With summary indicators of separate groups of teachers' professionally significant personal qualities the ratio of

their competence as an average indicator of all teachers' individual professionally significant personal qualities result was counted. The total score is 5, which corresponds as high level; from 4 to 3 - average level, then goes low level. The results of the second year teachers' professional and pedagogical communication culture manifestation is presented in table 1.

Table 1. The competence levels of teachers who has 2 years of professional activities experience

Level development	Competence	
	Absolute quantity	%
H	130	76
A	40	24
L	0	0
totally	170	100

Note (here and below) – **H** - high level of teachers' competence development, **A**- the average level of teacher's competence development, **L**- low level of teachers' competence development. **An absolute number** - the total number of samples.

Table 1 shows, that 76% of the teachers with two years of work experience have high level of professionally important personal qualities development and 24% - average, which indicates sufficient capacity for entity interaction.

We also conducted the ranking of professionally significant teachers' personal qualities' group. It was found that teachers with 2 years' experience take the first place on pedagogical orientation, then, almost at the same level, pedagogical reflection and pedagogical tact, and in last place - pedagogical thinking. For teachers with four years' experience in the first place - pedagogical reflection, below - pedagogical tact, then pedagogical orientation and pedagogical thinking, the last place - pedagogical goal setting. Teachers with five years' experience of pedagogical activity take the first place in pedagogical tact, the second - pedagogical reflection, followed by pedagogical thinking, pedagogical orientation, and last place - educational goal setting.

3.4 Correlation analysis of the components of professional and pedagogical communication culture and competence of teachers with 2 years' experience

The experimental data were processed by statistical processing. To clarify how some of the communicative culture indicators affect others, or how they relate with them, the technique of secondary statistical processing on the basis of correlation (Pearson, Spearman) and factor analysis were used. Calculation of correlation coefficients between all possible pairs of variables allowed us to obtain a matrix of correlations and relationships of correlation Pleiades (table 2).

Matrix analysis shows that the communicative abilities are significantly correlated with organizational skills (at significance level - 0,99) and empathy (at the level of 0.95). Organizational skills significantly are correlated with empathy (0.99) and self-control (0.99).

Professional and pedagogical communication culture level expression was significantly correlated with almost all indicators: communication and organizational skills (at significance level with those and other - 0,999), with self-control (at the level of 0.95), which confirms the validity of the test.

Table 2. Correlation matrix of professional and pedagogical communication culture components and teachers competence who has 2 years of experience

Rate	Abilities	empathy	Self-control	competence	Ratio - C
C	0,52197	0,3964	0,1881	0,013	0,7987
M		0,5558	0,5729	0,0876	0,8402
Empathy			0,3962	0,4169	0,754
Self-control				0,057	0,4319
Competence					0,4418

***Note*.C**–communicativeabilities, **M**–managerialabilities, **Cratio**–competenceratio(the sum indicator of professionally significant personal qualities)

The analysis of this correlation matrix shows the relationship between communicative and organizational abilities and

empathy (at the significance level of 0.95). Professional pedagogical communication culture was significantly correlated with communication skills (at level of significance 0,999) and empathy (at the significance level of 0.95). Thus, empathy is the general factor of professional and pedagogical communication culture forming of teachers with two years experience (table 3).

Table 3. Correlation matrix of professionally significant teachers' personal qualities and competence (2 years' experience)

Ratio	PT	PO	PTh	PGS	PR	competence
PT		0,7067	0,3267	0,4885	0,6421	0,8206
PO			0,5427	0,4368	0,4954	0,8194
PTh				0,6523	0,5083	0,7433
PGS					0,6331	0,7869
PR						0,8151

Note. **PT**–pedagogicaltact, **PO**–pedagogicalorientation, **PTh**–pedagogicalthinking, **PGS**–pedagogicalgoalsetting, **PR**–pedagogical reflection.

From the correlation matrix (table 3) we can see that pedagogical tact significantly is correlated with pedagogical orientation, pedagogical reflection, competence (level of significance 0,999) and pedagogical goal setting (at the level of 0.95). Pedagogical orientation is significantly correlated with pedagogical thinking (0.99), with pedagogical goal setting, pedagogical reflection (at the level of 0.95) and competence (level 0,999). Pedagogical thinking is significantly correlated with pedagogical reflection (0.99), with pedagogical goal setting and competence (level 0,999). Pedagogical goal setting is significantly correlated with pedagogical reflection and competence (level 0,999). Selected correlations indicate the formation of teachers' professional and pedagogical culture based on the optimal combination of different groups of professionally significant teachers' personal qualities, each of which firstly manifests itself, and only then is formed.

3.5 Correlation analysis of professional and pedagogical communication culture components and professionally significant personal qualities of teachers with 4 years' experience

We also revealed (see table 4) correlation between professional and pedagogical communication culture and separate groups of professionally significant personal qualities, which showed the strongest relationship between the professional and pedagogical communication culture and pedagogical thinking.

Table 4. Correlation matrix of professional and pedagogical communication culture components (teachers with experience of 4 years)

Ratio	M	Empathy	Self-control	Competence	PPCC
C	0,69	0,2061	0,159	0,2353	0,93
M		0,4557	0,4556	0,3996	0,8618
Empathy			0,2512	0,1876	0,4557
Self-control				0,23	0,263
Competence					0,3665

Note. **PPCC** – professional and pedagogical communication culture, **C**–communicative abilities, **M**–managerial abilities.

Analysis of the correlation matrix presented in table 4 shows that communication skills of teachers with years' experience are significantly correlated with their organizational abilities (on level - 0.99). In turn, their organizational skills are significantly correlated with empathy (at the significance level of 0.95) and competence (level of 0.95). Communicative culture is significantly correlated (see figure 3) with the communicative and organizational skills (level 0,999), empathy (at the level of 0.95). From the diagram in Fig.3 we can see that organizational skills are a common factor in the expression and formation of communicative culture. Analysis of the correlation matrix presented in table 5 shows that pedagogical tactics significantly correlated with pedagogical goal setting and competencies (level 0,999), with pedagogical reflection (on level 0.99). Pedagogical orientation is significantly correlated with competence (level of significance – 0.99).

Table 5. Correlation matrix of professionally significant personal qualities (teachers with 4 years' experience)

Ratio	PT	PO	PTh	PGS	PR	Competence
PT		0,3381	0,2758	0,7699	0,5831	0,8271
PO			0,1279	0,4246	0,3545	0,5759
PTh				0,3749	0,3993	0,5767
PGS					0,6244	0,8801
PR						0,7996

Note. PT – pedagogicaltact, **PO** – pedagogicalorientation, **PTh** – pedagogicalthinking, PGS – pedagogical goal setting, PR – pedagogical reflection.

Pedagogical thinking (PTh) was significantly correlated with competence (level of significance 0.99 for 17 degrees of freedom). Pedagogical goal setting was significantly correlated with pedagogical reflection (at the significance level 0,99) and competence (level 0,999). Pedagogical reflection was significantly correlated with competence (level 0,999).

Correlation analysis of professional and pedagogical communication culture components and professionally significant personal qualities of teachers with 5 years' experience.

Pedagogical tact, pedagogical goal setting, and pedagogical reflection are the common factors of teachers' professional and pedagogical culture formation.

Table 6. Correlation matrix of professional and pedagogical communication culture components (teachers with 5 years' experience)

Ratio	A	Empathy	Self-control	Competence	PPCC
C	0,5657	0,4910	0,2827	0,0165	0,7414
M		0,0626	0,2864	0,3990	0,4371
Empathy			0,2732	0,221	0,5771
Self-control				0,1625	0,1622
Competence					0,1264

Note. **PPCC**–professional and pedagogical communication culture, **C**–communicative abilities, **M**–Managerial abilities, **A** - abilities.

In study results' processing correlations between teachers' professional and pedagogical communication culture and separate groups of professionally significant personal qualities are found, which showed the strongest relationship between the professional and pedagogical communication culture and pedagogical tact.

Correlation matrix analysis presented in table 7 showed that pedagogical tact was significantly correlated with the pedagogical orientation, pedagogical thinking, pedagogical goal setting and competence (level 0,999).

Pedagogical orientation was significantly correlated with pedagogical thinking (at the significance level of 0.99), with the pedagogical goal setting and competence (level - 0,999), with pedagogical reflection (at a significance level of 0.95). Pedagogical thinking was significantly correlated with the pedagogical goal setting and competence (level of significance 0,999), with pedagogical reflection (0.99). Pedagogical goal setting was significantly correlated with pedagogical reflection (level - 0,999) and competence (0.99). Pedagogical reflection was significantly correlated with competence (level 0,999).

Table 7. Correlation matrix of professionally significant personal qualities of the teachers with 5 years' experience

Ratio	PT	PO	PTh	PGS	PR	Competence
PT		0,8893	0,7751	0,8527	0,4716	0,9971
PO			0,6672	0,8016	0,5267	0,8909
PTh				0,7769	0,5423	0,8744
PGS					0,6393	0,9469
PR						0,7111

Note. PT – pedagogicaltact, **PO** – pedagogicalorientation, **PTh** – pedagogicalthinking, **PGS** –pedagogical goal setting, **PR** – pedagogical reflection.

This table indicates that the pedagogical orientation, pedagogical thinking and pedagogical goal setting are manifested as

a general factor of competence for teachers with experience of 5 years. Also the correlation between professional pedagogical communication culture and separate professional groups of significant personal qualities are found, which showed the strongest relationship between professional pedagogical communication culture and pedagogical thinking.

4. Discussions

Experimental study of formation dynamics of professional and pedagogical communication culture separate structural components allowed us to detect general factors in the development of teachers' professional and pedagogical communication culture with different experience of professional activity. They are for teachers with experience of 5 years are empathy, pedagogical orientation and pedagogical tact. For teachers with experience of 4 years - self-control in communication, pedagogical reflection. For teachers with experience of 2 years - communicative and organizational abilities, pedagogical goals setting, pedagogical thinking.

After carrying out diagnostics on all indicators of professional and pedagogical communication culture psycho-pedagogical components the total (average of indicators taking into account standard deviations) ratio was counted and a number of teachers estimated (in percentage) classified according to level characteristics to one or another level of professional and pedagogical communication culture formation.

The diagnostic results showed that the formation of teachers' professional and pedagogical communication culture is a dynamic development process as of separate psychological-pedagogical components so their interrelationships and interdependence associated with the experience of pedagogical activity and the use of a particular model entity interaction.

The development of professional and pedagogical communication culture among the teachers with experience of two years is mainly at the secondary level (64.7%). Communicative and organizational abilities are found among most teachers at high level, empathy - low, the self-control in communication - on average, and professionally important personal qualities of most teachers are found at the secondary level. As for teachers' professionally significant personal qualities among the teachers who has two years of work experience the pedagogical orientation is on the first place, then goes pedagogical reflection, pedagogical goals setting, pedagogical tact, and in the last place - pedagogical thinking.

Most teachers with four years of experience have their professional and pedagogical communication culture at average level (52.6%). However, there is a reduction in the number of teachers exhibiting low level (5.3%) and increased the number of teachers having high level (42.1%) of professional and pedagogical communication culture. For this group of teachers their pedagogical reflection is on the first place, next - pedagogical tact, then pedagogical orientation and pedagogical thinking, the last place belongs to pedagogical goal setting.

In the sample of teachers with experience of five years, 48 % of surveyed shows the average level of professional and pedagogical communication culture, 52% - high, a low level is not detected. For teachers with experience of 5 years the pedagogical tact is on the first place, on the second - pedagogical reflection, then pedagogical thinking, pedagogical orientation, and in last place -pedagogical goal setting.

Formation dynamics of teachers' professional and pedagogical communication culture, studied on the basis of cross sections, is oriented towards a gradual increase of all indicators from low to medium. More significant changes are observed in the increase in the number of teachers with high level of this characteristic. However, only in the fifth year of professional activity the number of teachers, showing a fairly high level of professional and pedagogical communication culture is increased.

5. Conclusions

Thus, the results of correlation analysis revealed that among teachers with experience of two years the communication abilities are correlated with the empathy and organizational abilities, which, in turn, are correlated with self-control in communication. Among teachers with experience of 4 years their communication abilities are correlated with organizational abilities, which significantly are correlated with empathy and competence. As for teachers with experience of 5 years – they are characterized by close relationship of communicative abilities with organizational ones and empathy.

The results of factor analysis suggests that such structural psycho-pedagogical components of teachers' professional and pedagogical communication culture, as communicative and organizational abilities, empathy, self-control, communication and a group of professionally significant qualities (pedagogical goal setting, pedagogical thinking, pedagogical orientation, pedagogical reflection and pedagogical tact), are revealed depending on the experience of professional activity and interconnected.

For teachers who have experience of two years, empathy is the general factor in the development of

communicative, organizational abilities, self-control in communication and professionally significant personal qualities. For teachers with experience of four years the general factor is their organizational abilities. Teachers with experience of 5 years their pedagogical orientation, pedagogical thinking and pedagogical goal setting manifest themselves as general factors not only of individual components of professional and pedagogical communication culture, but also of their competence in general. Teachers of this sample are also characterized by interdependence between their professional and pedagogical communication culture and separate professional groups of significant personal qualities, especially between professional and pedagogical communication culture and pedagogical thinking.

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The Didactic Construct of Design Technologies in the Educational Process of Modern University

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Abstract

The relevance of the problem of arranging the educational process in modern university using design technology remains one of the most demanded in educating the future experts for modern production. Therefore, the objective of this article is to submit a scientific rationale for the didactic construct of design technologies in higher educational process as a productive educational model focused on educating a student's personality - a future professional demanded by today's job market. The paper submits theoretic and methodological foundations for designing and implementing project technologies into the university educational process, the nature and structure of the didactic construct of these technologies as a system category (the learning objectives, syllabus, the means of pedagogical partnership including motivation and teaching tools, arrangement of the educational process, the subjects of the learning process, the results of the activity and the level of professional proficiency). The article submissions may be useful for the teachers of educational institutions in the system of continuing professional education, young scientists, post graduate students, the university counselors, the attendants of the advanced training and retraining courses. It is also recommended for undergraduates and students participating in the research work.

Keywords: *a didactic construct of design technologies, modeling, monitoring, a design approach, design technologies, the typology of design technologies.*

1. Introduction

1.1 The relevance of the issue

Modern processes of change taking place in the educational process of a university are determined by the search for qualitatively new approaches to educate a new generation demanded by the society as active subjects of different social

strata, by the labor market as competent, creative professionals, as a personality like "Self" with the developed abilities of self-identification and self-realization. For this matter, the long-term goal of the educational process in higher education as emphasized in the Federal State Educational Standards of higher education (FSES, 2009), is the transformation of subject knowledge from the main objective of the educational process into a means of development of real competences of design, self-identity, self-determination, self- education and actualization of the university graduates in the labor market. According to the leading experts research in design and innovative educational technologies implementation (Verbitskiy, 1999; Grebenuk, 2000; Zinchenko, 2002; Ibragimov, 2012; Novikov, 2000; Selevko, 1999; Slastenin, 2003; Vlasova et al., 2015; Khutorskoiy, 2001; Schedrovitskiy, 1993; Yakimanskaya, 1996; Mokeyeva et al., 2015; Khairullina et al., 2015) the focus of higher education on the development of such kind of a person determines a qualitatively new didactic structure, organization, learning technologies and their management on the basis of design approach that is characterized by intensification of the simulation, design and construction functions. The design approach to the university educational process supports a multi-level system of achieving didactic objectives through detailed exploration of the learning - cognitive problems, intention, situations that result in tangible, practical outcome. The practical result (a design product) is presented through reports, abstracts on a given topic, essays, research projects, articles for the students' scientific conferences, youth grants, computer programs and other types that are determined by the educational syllabus. Within the design approach the innovative technology is not only a specific sequence of procedures that arrange learning activities to achieve the targeted educational objectives but primarily the organization of learning activity to build its product according to the law of cultural assimilation in the development of design culture elements (Zeer, 2000). The university student appears consistently in the design space, because he is obliged to design something constantly: his own very self, the trajectory of education and professional activity, living space, family and other.

1.2 The theoretical and methodological background of the didactic construct of design technologies in higher educational process

The theoretical and methodological novelty of the didactic construct of design technologies in higher educational process is determined by the whole range of priorities transformation of the university educational process where the quality training of the specialists who are demanded in the changing labor market, their competitiveness in the economy and production sectors is the highest priority. The demand for such specialists brings to reconsideration of the theory and practice of the university educational process, learning objectives, principles, functions, syllabus, and technology of teaching students by means of the research - based approaches that meet the needs of the age. These trends are observed in the requirements of the Federal State Educational Standards (FSES)and other legal and teaching materials (FSES of higher education, 2009; Law on Education, 1996). The state of the theory and practice of educational process in higher school also emphasizes the need and timeliness of the design approach development to update the didactic construct of design technologies as an innovative direction in the educational process, where the objective of creating a "design personality", with design thinking, able to address the problems and solve them both in everyday and unpredicted and unusual situations. The essence of the design - based approach (Clarín, 1995; Makhmutov, 1993; Zimnyaya, 2003) is presented through the objectives, syllabus and training technologies for the university students including:

1) the technological criteria generally accepted in educational theory and practice:
   - conceptuality that is constructed on the interdisciplinary basis, supported by personality - oriented concepts allowing to determine the objectives and values of design culture;
   - systemacity is the characteristic of a system: the logic of the educational process, integrity, interactions between its parts, interaction with environment;
   - manageability is determined by the possibility to design and correct the implementation stages of project activities, plan and anticipate the targeted results, provide pedagogical support and tutor the students in this activity gradually elaborating the educational challenges and tasks;
   - reproducibility is determined by an opportunity for recycling the techniques, methods and procedures of other teachers in various disciplines in identical conditions.
2) The didactic particularities of the technological process:
   - Work organization (setting the objective, determining the "field of problem", specifying the ideas, project planning, drawing up a long-range plan, creating work groups, setting the rules and restrictions for the project activity participants);
   - the selection of teaching materials, rethinking of teaching methods and means;
   - designing the methods, techniques, forms, partnerships strategies (teacher - student - small group), managing group processes, reflexive activity;

- analyzing the group dynamics, a prominent experience of using design technology, reflection over the results;

3) The foundation on the didactic principles, syllabus, procedures, problem-based teaching focused on such an organization of educational process that involves producing teacher-guided problem situations and students' independent activity to solve them:
   - determination of the problem that makes the framework of project activity. The problem is not offered to students available but through a variety of teaching methods, visual aids they are brought to its statement, hypotheses identifying its solution through the problem situation;
   - using the procedural nature of the technology: a problematic situation - a problem - the problem tasks of its resolution. The problematic situation is stated on the basis of real phenomena of social or personal experience. The problem may be presented in a sufficiently explicit or implicit form. This is determined by the level of students' preparedness for such activities, as well as their independent cognitive activity;
   - implementing different levels of problematicity: the first level is related to the teacher's representation of the material being studied; the second level - the teacher creates a problematic situation himself and helps the students to solve it; the third level - the teacher creates a problematic situation and the students solve it; the fourth level is characterized by the students' complete independence while identifying the problem, its solution and settling.

Analyzing different levels of problematicity the experts (Zimnyaya, 2003; Makhmutov, 1993) pay attention that the highest level of problematicity inherent in learning when the students themselves identify the problem (task), find a solution themselves, settle and self-check on the solution. The project activity is implemented at the fourth level. At the previous three ones the students get ready for such activities: to realize the problem (use the knowledge and skills to understand the educational information provided in the form of text, diagrams, charts, formulas, tables, integrating information from different sources), to characterize the problem (define variables of the problem and relations between them, to build hypotheses, evaluate information critically), to present the problem (to develop the form of presenting the information, to move from one kind of presentation to another), to solve the problem (to make decisions according to the terms of the problem, analyze, plan to achieve the goal), to reflect on the decision (to analyze the obtained solution and, if necessary, seek for further information, to critically evaluate the decision), to present the solution of the problem (choose the form of the result presentation and its clarity).

1.3 The background of the problem in the theory and practice of pedagogy

The theoretical - methodological basis of the research includes the works by the didactics specialists (Bespal'ko, 1995; Grebenuk, 2000; Ibragimov, 2011; Makhmutov, 1993; Khutorskoiy, 2001), the specialists in design and implementation of innovative technologies (Zeer, 2000; Zimnyaya, 2003; Novikov, 2000; Polat, Bukharkina, 1997; Selevko, 1998), the researchers in theoretical - methodological approaches to modeling the project-based education (Zimnyaya, 2003; Ibragimov, 1912; Pakhomova, 1997).

The theoretic basis contains the key concepts (design technologies, the didactic construct of design technologies, design approach, the typology of design techniques, modeling, monitoring); the system of design approach principles (the principle of personal goal-setting, the principle of interdisciplinarity, the principle of integration, the principle of harmonization, the matching principle, the design principle, the principle of self-determination, the principle of correction), as an expression of didactic categories in specific forms, methods, teaching tools, forms of organization of students' purposeful activity to acquire the specific content in a particular field of knowledge and professional activity; the innovative conditions of university educational environment (the conceptual ideas of design approach, the didactic construct of design technologies (types, structure, content, criteria-based assessment, results); a scientific - methodological support of project technologies implementation).

2. Methodological Framework

2.1 The key concepts

The qualitative and quantitative parameters of the study results have reflected in the process of updating the discursive content of the key concepts:

- a didactic construct is a system of didactic objectives, principles, functions, syllabus oriented on the results of creative personality development in the educational process;

- a didactic construct of project technology is the design mechanism for organizing learning activities of the university students to achieve targeted results, based on a system of objectives, principles, syllabus, procedures of problem-based learning enriched with the ideas of productive project activity: problem determination, identifying the "field" of the problems, specifying the ideas ; project planning, scheduling the project; the participants' independent work over the individual or group research as well as on creative tasks; the intermediate discussion of the obtained results in groups (in classroom, the classroom in the scientific community, in computer room, library, etc.); defending the project, reviewing, presentation; brainstorming, expertise, announcement of the results of external evaluation, stating the conclusions;
- Modeling - a method of objects, processes and phenomena research on the basis of their reconstruction, identically reproducing the simulated objects and ensuring accessibility for their thorough and comprehensive study;
- monitoring is a continuous monitoring over a process, phenomena, object to identify its compliance with the desired result or original assumption; in educational theory and practice - a systematic diagnostic monitoring of the educational process, personality development, design of the innovation systems, etc.;
- a project technology is a flexible learning model in university as a complete cycle of training activities. In other words it is a project based on didactic principles, content, procedures of problem-based learning with all the attributes of project activity;
- a design approach is an innovative solution of the problems described in the Federal State Educational Standard of higher vocational education (FSES) requirements for long term while implementing the didactic objective through the detailed study of the problem, intention, situation that result in tangible practical result ready for implementation;
- the typology of projects is the projects classification based on typical characteristic of a certain type.

2.2 Principles

The system of principles we have applied during the research:

- Personal goal-setting that means focusing on student's personality - a future specialist of modern production;
- Integration that means orienting the learning objectives towards professional objectives;
- Harmonization of the educational process requirements to the student with the production requirements to the personality of a future specialist;
- Conformity of the content of the subject didactic units to the design competencies reflected in the prediction model of a specialist (job description, psychogram, tehnogram);
- Designing for the development of common cultural and professional competencies needed for the research, design, developing, creative educational activity of the students;
- Self-determination which is manifested in the design of the individual trajectory of self-determination, self-transformation, independance, self-realization in vocational activities, providing value orientations in accordance with personal aspirations;
- Correction which provides clarification of the didactic units of studied disciplines cycles in the university curriculum and pragmatic reduction (trade) of the focus of professionally- important competencies recommended by the manufacture.

2.3 Conceptuality of educational milieu

A characteristic feature of the educational milieu of the university focused on using the didactic construct of design technologies in educational practice is its theoretical - methodical provision of design ideas: a scientific substantiation of the objectives and tasks of students' training; the principles of selecting and structuring the educational material; determination of theoretical knowledge, improving fundamentalization of training and practical knowledge forming the basis of professional competence; the development of interdisciplinary relations in the related fields of professional activity; identification of the integrative relations of professional knowledge with other sciences (engineering, scientific, liberal) and determination of professional knowledge as a single package; identifying the syllabus basic components: an invariant part as a block of technical objects, production technologies, etc. that is new and promising for modern production (industry); a professional part uniting the professionally-oriented knowledge selected according to the groups of professions; a specialized part including the concepts and theories selected according to the students' specialization; a worldview part uniting liberal, professional, specialized and practical disciplines cycles providing ideological direction of

knowledge.

The application of theoretical foundations, searching for the ways to address them in particular academic and practical activities, in creating a targeted "product" enable students to understand the importance of theoretical knowledge in practical solution of problematic situations. This is the didactic nature of project activity, its didactic role in project technologies implementation.

3. Results and Discussions

3.1 The typology of the didactic constructs of design technologies

It is determined by:

- the project dominant activities (research, exploration, creative, role-playing, practice - oriented, informative, etc.);
- the substantive areas: a mono-construct (within a single field of knowledge), an interdisciplinary construct (within a variety of disciplines);
- the character of coordination: direct (rigid, flexible), hidden (implicit, simulating the project participants);
- the character of contacts (among the participants of one institution, city, region, country, different countries);
- the number of participants;
- the duration of the project.

In accordance with the project dominant activity we have identified the following types of didactic constructs of design technologies:

- the research type is subjected to the logic of research and have a structure that is close or completely coincides with a genuine scientific research. This type of construct suggests argumentation of the topic relevance, research problem definition, setting the tasks, methods, sources of information, the choice of methodology, hypothesizing, developing the ways to solve it (experimental, pilot), discussing the findings, conclusions, presentation of the results, estimating new challenges for further research development;
- the creative type - any construct can be called creative. While determining the creative type, it is reasonable to select its dominant aspect (a collective newspaper, video, writing, theatrical, celebration). The presentation of the result requires a well-defined structure in the form of a movie script, a celebration program, a writing plan, etc.;
- the role, game type - the structure of these types remain open until the end of work. The participants take up a role according to the nature and content of the construct. It can be both fictional and virtual characters that simulate business, social relations developed by the participants of the situation. The results are projected at an early stage of implementation. They show a high degree of creativity;
- the information type is aimed at collecting information about the object, phenomenon. For its implementation it requires a well-designed structure, organizational environment, systematic correction as the work advances. The structure of this type is expressed as follows: the objective of the construct, the relevance of information sources (literary, mass media and databases: the Internet, interviews with partners, "brainstorming" etc.), information processing, result, presentation;
- the practice - oriented type is distinguished by the initially outlined result of the activity to implement the students' personal interests (a document drafted upon research results in ecology, biology; the documents of professionally - significant, historic, literary character), recommendations to eliminate the discrepancies found. For example, the draft law on environment protection, students' language vocabulary and others. Such constructs require an elaborate structure with the functions distribution for every participant, clear conclusions, a presentation including personal contribution of every participant.

According to the substantive area we have identified:

- the mono-construct type is carried out within a single subject. In this case the most complex areas of the subject or the key problems of the course are selected. It requires a clear structure, specifying the competencies that will be formed as the result. The logic planning of the training sessions and the forms of presentation are developed by the students and often the work on such constructs is further continued in scientific community;
- the interdisciplinary type is usually held in extracurricular time. This is either a small-scale projects involving two - three subjects, or advanced long-term ones intended to solve a complex problem for all the participants. They require coordination of both teachers and students having clearly defined the tasks, well-designed forms

of intermediate and final presentations.

According to the character of coordination we found out:

- the types of open, explicit coordination. In such constructs a coordinator performs his own function guiding the work of the participants, organizing if necessary, the activities of individual performers. For example, if you want to arrange an interview in an official institution, invite experts, etc.;
- the hidden coordination type (this mainly relates to telecommunication projects). In such constructs the coordinator reveals himself neither in any networks nor in the activity of group participants. It acts as a full member (one of...). These types can be exemplified with famous telecommunication projects: "Pravo Golosa" (“ A Right to Vote”), " Modnyj Prigovor " (“Fashion Verdict”) and others.
- According to the character of contacts we have determined:
- the domestic or regional contacts (within a country). These constructs are interdisciplinary, organized either within a single institution or between institutions within the region, the country;
- the international (the participants are from different countries). This type is of exceptional interest, but its implementation requires electronic information technologies.

The construct according to the number of participants includes the types: personal (between two parties located in different educational institutions, countries, regions); pair (between the pairs of participants); group (between the groups of participants). From the methodological point of view the organization of students' group activities depends greatly on the teacher.

According to the duration time we have pointed out: short-term (to solve minor problems or a part of a major problem), which can be developed on the basis of several classes of one subject or on an interdisciplinary basis; medium-term (from a week to a month); long-term (from one month to several months).

As a rule, the work over the short-term types is held in a single subject classroom involving sometimes knowledge from other disciplines. As for the constructs of medium and long term they -- traditional or telecommunication of regional or international character - are interdisciplinary and contain a significant problem or several interrelated problems, and therefore may represent a package of constructs. As a rule, they are conducted outside classroom, although their elements are used in the classroom either.

The results of the study performed indicate that in real learning process the universities use mixed types of didactic constructs of design technology including research, creative, substantive, practice oriented and information elements at the same time. Every type is characterized by one or another form of coordination, deadlines, stages, number of participants and others.

3.2 The classification of the didactic constructs of design technology.

The classification is determined by the grounds presented in the typology of design technologies. But above all the didactic construct of design technology reflects the logic of student and teacher activities. Student activities in connection with this logic appear as a system of educational projects: any academic program for the student is a training project, the study of particular courses is also a training project (the subprojects in relation to the main project - a curriculum). The activities of the teacher are structured in a similar way - it supposes implementation of pedagogical projects (Novikov, 2000). The didactic constructs of design technology thus should reflect the three levels of activity: acquiring the curriculum, the subject curriculum, the topics. In the educational environment of modern university the academic time becomes the determining factor of constructing a didactic construct of the technology. The major training project (a curriculum) is divided into sub-projects (according to the year of study for a Bachelor's, Master's and specialist's degree: a training project of the first, second, etc. years of study). On the same grounds the annual training project can be divided into one-semester training project then into subject projects and then - a project as a specific training session (Ibragimov, 2012). Accordingly we have classified the didactic constructs of design technologies:

- Factual constructs are productive in the process of studying the ideas, concepts, facts in the subject educational modules of all cycles;
- Modular constructs are independent training projects that are included into basic curriculum;
- Mono-subject constructs exist in the form of independent courses on compulsory or optional basis;
- Interdisciplinary constructs - long-term, integrated design technologies including the study of training material from different subjects, fields of science and production;
- Reflective constructs are focused on evaluation of the implemented technologies, the decision on their productivity or correction and continuing the pilot.

3.3 The stages of drafting a didactic construct of design technology

As a result of the performed research we have established the scientifically -proved stages of drafting a didactic construct.

The pre-drafting stage means introduction into the project activities. Its task is to predetermine the success of the second stage - implementation of the didactic construct. It is achieved through the logical sequence: diagnostics, problematization, goal-setting, conceptualization, formatting, pre-socialization of the construct.

The diagnostics is carried out in the process of relating the education to real life, cognition and profession problems. It provides a living, creative interest of the participants in identifying the problems, a high degree of freedom of search in surrounding and information environment, access to relevant information, equipping the participants with the ways to explore reality, the opportunity to exchange views with fellow students, psychological readiness to keep the impression of studying in mind, etc..

Problematization is valuable self-determination of students in the problematic field of studied content. The discovery of a new problem becomes a serious motif to be included in the project activities. Problematization includes the steps to identify conflicts, the "field of problems, defining a general problem, creating a "tree of objectives", their systematization and hierarchization.

Conceptualization refers to the methodological level. The accuracy of the design concept depends on clear understanding of the range of categories, concepts, ideas, definitions which will describe the phenomena and processes within the construct.

Specification of the objective. The objective plays a stimulating (regarding the participants), transformational (regarding the subject of design and its parts), regulating (regarding the activity and its results), orientation (regarding the final product) role. After specifying the objective, one should develop a strategy of design technology which determines the overall direction and character of achieving.

Formatting the didactic construct of design technology is a way of restricting (regulating) the project participants' activity by setting its boundaries and scale. A scientifically -grounded choice of the format includes the regulations on time, space, context, membership and other parameters. Their number varies according to the pedagogical situation and the purposes of developing the construct.

Pre-socialization means the procedure of public presentation of the didactic construct. At this stage the experts decide on admission of members to implement the planned construct or to reject it.

Implementation stage. If the pre-project stage was implemented entirely, every participant can start the planned action and approach the assigned tasks. At the stage of implementation every design element is determined by the logic of creating or transforming the object of design and is always geared to specific targets coordinated at the pre-stage. The members must clearly understand their objectives, expect the results and their significance in the overall concept of design technology.

The work at the final stage includes two main procedures that are different in the technology but converge in terms of functionality. These are the expertise and reflection. The expertise is conducted by involving the independent experts; in the course of (self-) evaluation of the results according to the selected criteria; as a part of reflection on the success and integrity of design as a joint activity including its objectives, content, forms, methods of implementation; while reflection on design as a technology built according to certain rules.

The reflective stage includes an assessment of not only material but also human result. Metaphorically it can be called "The Lessons of didactic construct of design technology." Under correct organization it has the greatest educational impact. Primarily reflection concerns the course of project activities and the settled system of relations. Reflection on the output of the project activity is an appeal of the participants to themselves and each other in a new way, from the height of the acquired experience of joint activities. In final reflection the time of design technology seems "looped". It is vision of oneself from aside - "here and now". This is a retrospective view over the course passed. This is also a view into the future.

The productivity of implementing the didactic construct of the project technology is confirmed by the results of the experimental work in the universities educational practice in the process of curriculum transformation, syllabus, training constructs package (recommendations, constructs scenarios). The expert assessment of project activities of the students participating in the study significantly increases the level of knowledge application (their solidness, scope, stability, consistency, integrity), general cultural and professional competencies (using knowledge, designing personal - professional strategy, the choice of axiological alternatives, willingness to self-transformation, changing socio - professional priorities, creativity). The survey results are presented in table 1. The dynamics of students' design competencies."

Table 1. The dynamics of students' design competencies (data in %%)

Indexes	Groups			
	EG(1 к.)	EG (3 к.)	CG (1 к.)	CG (3 к.)
Knowledge application	31,0	43,0	25,9	34,7
Designing a personal- professional strategy of activity	20,3	32,0	20,5	23,6
Axiological choice	20,3	28,7	25,6	30,2
Self-transformation in design activity	18,7	25,6	20,7	23,1
Creativity	34,3	49,2	18,0	19,0

Notes: EG - an experimental group, CG – a control group

4. Conclusion

The theoretic and practical relevance of the research is determined by the established structure of university education focused on the implementation of advanced technologies that meet the needs of society, labor market and the claims of the individual. The results of the study indicate that the structure, content and procedural aspects of the didactic construct of project technology is also consistent with the principles of synergistic modernization of the university educational process: interdisciplinarity, self-transformation of the individual in project activity, readiness to productive activities based on performing individual actions from goal-setting to self-control and self-esteem. This trend indicates a significant extensive and intensive educational potential of the didactic construct of design technologies important for the development of synergetic, advanced forms of university students' education.

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Ethnomathematics of Indigenous Peoples of the North

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Abstract

Education of the value to a particular society in the Northern regions of the Russian Federation is connected with socio-cultural and economic transformations in the places of dense residence of small-numbered peoples of the North, which leads to the necessity of improving the system of upbringing and education of children in encampments. In this regard, the process of education should organically include axiological aspects of human life: the interiorization of nomadic peoples' values, ensuring the development of a student's personality. The article discloses the content of the regional-ethnic component of mathematics education in which the learning content is in unity with the basics of mathematical science and ethnomathematics of indigenous peoples of the North. The leading approach to study this problem, allowing to identify the main content of the course "Ethnomathematics" of the regional-ethnic component, is the analysis of scientific, educational, fiction literature and systematization of the knowledge accumulated by many generations (astronomical, phenological, economic) and elementary issues on the development of numbering, mathematical terminology, the emergence of measures associated with a unique culture and traditional economic activities of the nomadic peoples of the North. The main results of the article: ethnomathematics was being formed by the course of the history of the region's reclamation, was being enriched by the adaptive features, as well as by the spiritual and economic practices of the Northern peoples. It is possible to talk about the viability of the proposed contents of the specialized course "Ethnomathematics" of the regional component in the regions of Russia with the indigenous small-numbered peoples of the North.

Keywords: *indigenous education, ethnomathematics, North indigenous ethnic groups, numbering of numbers, mathematical terminology, measurement of sizes.*

1. Introduction

1.1 The relevance of the problem

Mathematical education is compulsory and an integral part of general education at all the levels of education. Currently, within the study of mathematics in schools a national-regional component is being widely implemented in the areas of: a) personal development: the formation of ideas about mathematics as a part of universal human culture; b) in the meta-disciplinary area: the development of ideas about mathematics as a form of description and a method of cognition. The formation of the content of the course "Ethnomathematics" of the regional component should be systematized in values stored in the religious, cultural, socio-historical, family traditions of nomadic peoples, transmitted from generation to generation and providing personal development. The content of the specialized course "Ethnomathematics" should be

aimed primarily at students' interiorization of cultural values, arming them with knowledge about the natural environment, distinctive activities of the nomadic peoples of the North (Tereshkina, 2013).

1.2 The importance of the research problem

Pedagogical understanding of the current educational situation in the places of dense residence of indigenous small-numbered peoples of the North in the study of the regional component courses leads to the search for introduction of a section into the content of the educational subject "Mathematics", which explores the values, lifestyle and unique culture of the Northern peoples, in which mathematics occurs. An example of a regional education is a mobile form of the school network – the nomadic school, aimed at meeting the needs of Northern peoples in quality education and development of children, taking into account individual motives, educational interests of students, values, traditions and unique culture of nomadic peoples in places of their dense residence in Yakutia (Tereshkina, 2013). The organizational integrity of the educational environment of nomadic schools acts as a result of implementing the variable (regional-ethnic) component of education as the interiorization of values, traditions and experience of the original activity in the life of nomads. In this context, to implement the substantive content of the regional-ethnic component of training of the specialized course "Ethnomathematics" the systematization of mathematical knowledge and views of the Northern peoples of Russia is required, from the point of view of elementary issues on the development of concepts of number and numbering of numbers, the distinctive terminology, the emergence of measures as an important social experience of nomadic peoples, adapted to be passed down from generation to generation.

1.3 Features of nomadic education of small-numbered peoples in the North

We define the nomadic education as "the means of intellectual, spiritual, and social development of indigenous peoples tested for centuries on the traditions and cultural values with regard to the principles of their activity and lifestyle in the North of the Russian Federation" (Tereshkina, 2013). The core of the nomadic education is students' interiorization of values, norms, and behavior patterns. Conscious acquisition, preservation and enhancement of the experience of the traditional activities of the nomadic people are that foundation which unites the generations together. The system of nomadic education includes the nomadic school, the family community, the development Center of the nomadic educational institutions of Yakutia, the Centre for distance education in Yakutia. The main purpose of ethnomathematics – is the study of culture, in which mathematics occurs (the term "ethnomathematics" was introduced at the fifth congress of ICME (International Congress on Mathematical education) – it is to teach students to solve problems that arise in real-life situations, using knowledge, training and life experiences, values of the nomadic peoples of the North.

1.4 The status of the problem

The requirements of the nomadic peoples of the North for the results of education are much more complicated than a simple evaluation of the received knowledge. The main problem of the educational theory and practice of the nomadic education is the lack of science-based development of the course content of the regional-ethnic component of the educational subject "Mathematics" in nomadic schools, where the foundation for personal development is laid, due to the specific role of ethnicity: "function or behavior pattern objectively given to an individuum in the system of social and interpersonal relations" (Mudrik, 1986). The term of "ethnomathematics" first appeared in the second half of the last century in the works of a Brazilian mathematician U.D'Ambrozio, who used this term as "... a specific encoding tool that enables the members of a particular culture to not only describe but also to understand the reality and to manage it..." (Diachkovskaia, 2014). The idea of belonging of mathematics to the field of culture is allocated as follows: the foundation contributing to the specificity of mathematical knowledge and culture of a particular social group as a whole is a traditional everyday practical activity, prevailing in it (Yashin, 2013). In the selection of the content of the specialized course of the regional-ethnic area the reliance on the following theoretical propositions was realized: "the purpose of education − is to prepare children for participating in the activities of human society" (A.V. Borovskikh, 2010), the source of the content formation of general education is culture − as the most important form of social and cultural experience (V.V. Kraievskiy, 2013). The analysis of the works of the aforementioned authors and other publications on the topic has shown that the problems are related to the study of the history of development of the common knowledge of the nomadic peoples in the North, giving the opportunity to form a view about mathematics as a part of universal human culture.

1.5 The research hypothesis

The analysis of the theoretical works and practical activities in the aspect of the problem being developed showed that issues related to regional characteristics of teaching students in the conditions of the specialty "Teacher education" remain as the understudied area of scientific knowledge and practical activities today, which enabled us to formulate the hypothesis of the research of this problem: the content of the professional education of the students majoring in "Mathematics" would be more effective if the content of the regional-ethnic component was developed for the "History and methodology of mathematics" course and the possibilities of the regional cultural and historical learning environment were used in the places of dense residence of indigenous small-numbered peoples of the North.

2. Materials and Methods

2.1 Theoretical and empirical methods

To test the hypotheses the following research methods were used: theoretical − analysis and generalization of scientific, educational literature and fiction on the research problem; the systematization of the accumulated knowledge of many generations (astronomical, geographical, phenological, economic) and elementary issues on the development of numbering, mathematical terminology, the emergence of measures associated with a unique culture and traditional economic activities of the nomadic peoples of the North. Empirical – are observation, interviews with high school students, college students, members of the nomadic community.

2.2 Mathematical culture in the life and folklore of indigenous small-numbered peoples of the North

In the book "History of mathematics in ancient times" it is stated that the primitive tribes of nomadic pastoralists needed guidance when moving over the vast steppes. Thus their observation of the movement of the stars began" (Kolman, 1961). In the work “The Chukchi. The religion” the issue about the astrological views of the Chukchi is dealt with, as well. They were engaged in observation of the sky, watched the movements of the celestial bodies also in winter, when the sun does not appear at all, used them as landmarks (Bogoraz, 1934). In the work "Paths of the Millennium" it is noted that all celestial bodies, constellations and stars had their names among the Northern peoples and are linked to the visually observed position of the object (Keimetinov, 2000). The ancestors of the modern evens (the Evenkis, as well) have marked the main, visually noticeable feature in the stars, namely, that they seem to leap, jump, fly away, in other words, blinking. The confirmation is found in the meanings of the words *ocikaht* (the Evens'), *osikta* (the Evenkis') meaning "leaping", "jumping", "flashing". Names of stars are most often associated with the mythical ideas of nomadic peoples about the origin of these stars: *Hawak hɵtaranni* ‘tracks of the hunter's skis' − the Milky Way, *Dierlakachan udyan* ‘rabbit trail' − a group of stars of the Little Dipper, and so on. The analysis of the literature showed that the Evens had calculus of months through various parts of their bodies. The calculus of months was meant to begin with the crown of the head in a circle, strictly following the visual solar motion around the earth, listing the names of the main parts of the human hands and both shoulders, that was available to everyone in the same period of the historical development. The counting begins with January: *toganee haian* "the height, the top, the top of the land", *evry mir* “the sloping shoulder”, *evry echen* “the descending elbow”, *evry bilan* “the descending wrists”, *evry unma* "descending hands", *evry haialra* "the descending fingers", *diugani heien* “the height, the top, the peak of summer”, *aucheri haialra* "the bottom-up joint of the finger", *aucheri unma* "the rising hands", *aucheri bilan* “the rising wrist”, *aucheri echen* "the rising elbow", *aucheri mir* "the upside shoulder" (Vinokurova, 2006). An Even had just to remember what part of his body he got at when counting months and, replicating the counting, starting from the top, again to find the desired month. Traditional economic activities of the Evens demanded empirical generalizations, sensory counting in reindeer terminology, associated with the fixation of the age and sex of deers: *ankan* ‘fawn under 6 months', *namukan* ‘she-deer under 1 year', *eni* ‘she-deer of 1 year, having calved', *khatt*i ‘she-deer - doe of 1-2 years', *iavkahn* ‘calf of a domestic reindeer of 1-2 years', *iitian* ‘three years', *moika* ‘a deer male of 2-3 years', *nyorkahn* ‘deer-male of 4 years', *nehrkahn* ‘four years', *khavdi corbeh* ‘deer-male over 6 years of age' (Vinokurova, 2006). As we move to a higher level of the development, the "sensory" counting turns out to be insufficient. There arises the need to compare multitudes, comparing elementwise their number, for example. This need manifested itself mainly in the process of communication between people and their exchange operations. Originally the exchange was not of the transaction nature. So, until 1931, there was no trade between the Dolgans. The one in need of some things came to one who had that thing, begged for it and always got this thing for free. But later, the one who gave the thing, in case of any need, could address the recipient, and the latter was to give what was asked for". If a thing was not

expensive, was not equivalent to the deer, the Dolgans usually would say when selling: “We don't know how much you give, so much is okay” (Popov, 2003). This way a mutual exchange happens, that is not limited by time and not determined by equal value of the exchanged objects (things). An idea about the quality of the exchanged items, their weight, size, etc., did not yet play a decisive role. Per pound of tobacco one had to pay from ten to twenty squirrels, for a brick of tea − 20 squirrels, a firelock − 200 squirrels, a Yakut knife − 10 squirrels, a pricket − 20 squirrels. Small-numbered peoples of the North in the choice of units of measurement intuitively used the dimensions of parts of the human body, although the inaccuracy, instability of such kind of units is obvious. The Evens’ length standards were the following measurement units: *"togahr"* 'the distance between the thumb and the forefinger at their outer position', *"echen"* 'a distance equal to the elbow of a man', *"dar"* 'a distance equal to the length of the outstretched hands', *"dar gadan"* 'the distance from the middle of the chest to the end of an arm's length', *"tomka"* 'a distance equal to one-step' (Shadrina, 2014). The smallest unit of length measurement among the Dolgans is: *black nails* – the dirt strip size under the nail. When measuring the height (the depth) the Dolgans’ measurement unit is also the dimensions of the parts of the body: "the mountain cracked open so that *one little finger* fits it"; "with this the mount opened *as widely as a palm*; a wolf cub came out *up to the waist*, and the bear cub was so out that *his back* was shown"; "*about eight joints* to pinch horsetail-grass"; “into the frozen ground leaving *knee-high*”. In the olango (a tale) “a Brave Okwolai” it was said: "... sister, standing in front of his brother, was with such words: "The more Yakuts there are according to *the length of the gun*, the better people there are judging by *the length of the string*", and so saying, you were exalted..." (Popov, 2003). Here other measures are mentioned, related to hunting of nomads "the length of a gun", "length of string". To measure the length of a great length, the distances, which approximately could be passed for a certain (but not exact) period of time, served as the measurement units. Such length measures among the Evens, for example, were: "*nulgae*" distance for one migration (about 25 km), "*chaŋat*" – the distance traveled without stopping, about 30 km (Tereshkina, 2013), "*kunikich*" - 'distance, where the cry comes' (Shadrina, 2014). In the tale "the King's tasks" there is description about a bird ysaai-tumaraahn (eagle): "A sharp-sighted bird, notices at a distance of *nine nights* (about 125 km), even if the deer hair falls..." (Popov, 2003). The Nenets used such concepts as migration during the winter to determine the length and distance (syerah khun - nenets.), within so many days (yalakhun - nenets); the distance that people are passing on deers without rest - 7-15 km (nedalava - nenets.), the distance from the shooter to the target (150-200 m), the distance at which the subject (e.g., chum) is visible with the naked eye; the length of the roping − 15-20 m (Pyryrco, 2014). The analysis of the literature shows that small-numbered peoples of the North used their own measures of weight for weighing. The Dolgans had the replacement of measuring the weight of food and fluids by comparing the respective amounts of household items. To store dried meat chopped into small pieces (*elyuktae - dolgan.),* sun-cured Pacific salmon (*diouukala-dolgan.*) and crushed dried fish (*puorsa - dolgan.*), which were used as a snack for tea, the *outaki* was used − bags made of burbot skin. Deer or goose fat was kept in the deer bladder, and in the stomach of a big fish, mainly Kundscha, only fish oil was kept. The measures known to the Yukagirs, "chuoraskae douun" − the contents of one boiler, "loogouroobull Touul" - the contents of the tray (i.e. what fits into the tray of the skins sewn together, "peagae touul" – the content of the birch bark boxes intended for boiling water). Also common is the approximate estimate of the heaviness by comparing with the traction power of the deer: "paraah" – the content of the sled, which is barely being pulled by two deers, "vaelyl" or "newmurdongoi" – the deer pack (saddle bag), the weight is meant that can be carried by a pack deer, "tudaenial" – the cart that can be carried by a reindeer-drawn sled (Diachkovskaia, 2014). The Nenets’ units of volume were the capacity of the boats, sleds, deer stomach (filled with fish oil, was considered to be at a price equal to one deer). For some spatial images there were very few abstract concepts, which is a natural support for learning the basics of science. The dolgan terms denoting mathematical concepts: diala cyr - ‘place and space’, tas - ‘surface’, ouhouna - ‘length’, urdyugae - ‘height’, ugyus - ‘many, much’, and so on (Aksenova, 1992). The Yukagirs had the following geometric concepts-terms: "Puraŋa" - 'surface', 'sabirkha" - 'plane', "chougounmae" - n. 'corner', "vakhchae" – noun. 1) face, sharp side; 2) edge, face, side of something; 3) the edge, the edge of the eye, "pomorkae"- n. 1) ring, circle; 2) fastener, loop, "pomneiroukoun" - n. 'a round thing', "ponkhataah" - n. 'something convex like a ball", "ordialaldanout" - as a noun 'he who is in the center (in the middle), located in the middle, in the centre', "ordian" - 'in the middle; in the central part of something', "samnae" - 'to be flat' and et cetera (Diachkovskaia, 2014). The aesthetic needs of indigenous small-numbered peoples of the North played an important role in the development of geometric ideas: the desire to decorate household items, clothes, themselves. In ornamental art the dolgan symmetry is used as the main tool to create a visual effect associated with the movement, time and space. In the ornaments there are three symmetric transformations: the reflection, the rotation in the rosaces and the parallel transferal at the border organization of the ornament. Upon reflection, or mirror symmetry, there is an imaginary plane which divides the figure into two secularly equal halves and is called the “plane of symmetry”. The alignment by rotation is associated with the “axis of symmetry” (Ryndina, 1995). The motives for the ornaments are taken from the environment “rabbit ears”, “antlers”, “broken antlers”, “elk antlers”, “cow

horns", "brands" (Pyryrco, 2014).

3. Results

3.1 The regional component of the curriculum subjects in the area of the ""mathematics" teacher education profile".

In the process of learning the disciplines of general and special cycles, the following manuals were developed and implemented in the educational process: "the History of mathematics" (numberings of various peoples of the world" (Merlina, 2009), "a Collection of problems according to the methods of teaching mathematics on the basis of folklore and local history material of Yakutia", (Petrova, 2011), "Folklore and local history mathematical problems of the peoples of Russia" (Merlina, 2012), "Mathematics and Informatics" on the basis of historical, folklore and local history mathematical problems (Kartashova, 2013), "Ethnomathematics of indigenous small-numbered peoples of the North (the Yukagirs). Historical, folklore and local history mathematical problems of the upper Kolyma river and the lower Kolyma uluses of the Sakha Republic (Yakutia)" (Diachkovskaia, 2014), taking into account the regional component, the primary purpose of which is to build the basic knowledge of students and to develop personality motivation for the knowledge of the way of life, distinctive culture and values of the indigenous peoples of the North. The developed training manuals of the disciplines (courses) in the field of "Pedagogical education" study, maximally implement the principle of cultural congruence, which is reflected by virtue of its uniqueness and special inner strength, as cultural-historical traditions are still alive and revered, the indigenous culture and nomadic way of life, basically, have been preserved, the spiritual legacy still affects the mindset of people (Tereshkina, 2013) and that responds to the content of training students majoring in "Teacher education" in the region with the nomadic peoples of the North. The textbooks of the course "History and methodology of mathematics" in special and professional cycles disciplines were examined by the Ministry of education and science of the Russian Federation and recommended for use within the specialization 050100 "Teacher education" ("mathematics" profile). Under the guidance of teachers, the students develop and apply creative problems on folklore and local history material, which are used as a means of learning and cognitive activity in the acquisition of mathematical knowledge, in which the learning content acquisition is in unity with the creative work of extraction of the scientific information accumulated in the history of the people. Of particular interest is the educational work on teaching problem solving to children of the indigenous peoples of the North in a health sanatorium "Bas Chagda" (Yakutsk).

3.2 The content of the regional-ethnic component of the course "History and methodology of mathematics" of "Teacher education" training in the field of "Mathematics"

The leading approach to the study of this problem, making it possible to identify the main content of the specialized course "Ethnomathematics" of the regional-ethnic component, is to organize common knowledge of the Northern peoples and elementary issues on the development of numbering, mathematical terminology, the emergence of measures associated with a unique culture and traditional economic activities of indigenous peoples of the North. A necessary component of the mathematical culture of a person is a general familiarity with the methods of cognition - from simple, digestible in direct experience, to the assimilation of the idea of number and symmetry, the perception of geometric shapes, the space. Mathematical culture of the peoples of the North was being formed by the course of history of the region's exploration, was being enriched by adaptive features, as well as by spiritual and economic experience of the people. Astronomical views of the Northern peoples reflect features of their thinking, show the contemplative nature of the Northern people's perception of concepts related to space and time. The people of the North have three main types of calendar systems: based on the alternation of the moon phases (the Dolgans, the Yukagirs), natural-economic principle (the Evenks), the calculus of months through various parts of one's body (the evens). In the process of production activity a person gets to know the world, i.e., reflects in his consciousness the surrounding objects and phenomena. For non-literate peoples, it was important to consolidate the results of observation in the memory of a person, the formation of notions and concepts. "A number" is empirically the first concept of mathematics; it is in the basis of mathematical knowledge of nomadic peoples. Manual count played the same important role in the development of counting as the discovery of fire in the overall development of a primitive man (Kolman, 1961). Perhaps, the first act of finger counting was the indication of a subject by the index finger; here the finger played the role of the unit (Merlina, 2009). Each of the peoples of the North gradually came to the necessity to go to the fingers of one's own hand as a counting tool. In the numbers of irkin (one), atakhun (two), yelokoun (four) and kounal (ten) in the Yukagir language there is the syllable "kin", "koun", "khuun", which means "a finger." So, five (niakhanboy) is related to the word khanbo (a palm, a wrist, a hand, i.e. five fingers). Niakhani-boi (five) – presumably, a wrist, a hand. Kunael (ten) means "fingers all together", i.e., ten

(Shadrin, 2014). The number is perceived as one of the properties of the set of objects that characterize this set along with the other properties: color, shape, size, and so on (Bashmakova, 1951). The numerals represent a vast reservoir of folk vocabulary of the Northern peoples, which contributed to the formation of a numeric range. A large number of items for which there were no appropriate terms − names of numbers, the Yukagirs estimated by comparing with the number of stars in the sky. Description of great wealth in folk tales (olongo) of the Dolgans "Brave Okwolai" is written by the words "He owned so many cattle that the sun was blacked out by dew because of the cattle's breath, by so much, that the moon was covered by the smoke fog from the evaporation of the livestock". The nomadic peoples of the North, when counting, mostly used only whole positive numbers. They understood that an odd number − is "chorboҕtauhokh bouolar" (lit. it happens with the remainder). A daughter-in-law – an Evenki, should wear dresses in three layers. The bottom of the outerwear (coat) of the daughter-in-law must be sheathed by three fur pelts. A future daughters-in-law was required an odd number of fur coats 7-9, an odd number of deers − 117 or 201 (Anisimova, 2010). In the oral epic of the Dolgans (olongo) "Brother and sister" (Popov, 2003) fractional numbers (fractions) are mentioned: "A monster sings: "Your top – will split into six, your bottom − will rip into three...". The Yukagirs knew about a half and a quarter: *ynuunchyevipyt*, *ygaechyҕapyt* 'half', *gyenounaeta* 'in half', *pytvychyvipyt* − 'a quarter', *chyviptygivin* − 'half a year' (Diachkovskaia, 2014). The history of the numbering had begun with the first attempts of a man to systematize the surrounding numbers. Different groups of numbers had been tried. So there appeared the binary, the tertiary, the five- and sextuple systems, ten- and duodecimal, sexagesimal number systems and others (Merlina, 2009). The Yukaghir counting system is based on two principles − the fivefold and tertiary. On the one hand, number three is taken as the basis. Four (ye'lokoun and ya'lokhloi) means three and one; six (malhi'ialoi) − is twice three; seven (purki'oi) − is one more than six; eight (malhi'yalokloi) means twice four. Kunael (ten) means "fingers all together", i.e. ten. Niakhani-boi (five) − presumably a wrist, a hand (Jochelson, 2005). The vigesimal system arose from the people, who count not only using fingers, but also toes. Chukchi sometimes take off their shoes, and the score is twenty fingers and toes. Five people are a hundred (Semoushkin, 1970). There was irregular, random matching between two sets (between sets of items in exchange). In the absence of writing among the peoples of the North there were no special characters for numbers. The results of the generalization of the mathematical culture of the indigenous peoples of the North testify to the effectiveness of the implementation of the contents of the regional component of general professional and special disciplines in the field of "Teacher education" promoting knowledge of lifestyle, distinctive culture and values of the indigenous peoples of the North.

4. Discussion

The problems of mathematical culture of indigenous peoples of the North (ethnomathematics) are considered by Merlina N.I., Kartashova S.A. (Chuvashia), Petrova A.I., Tereshkina G.D., Diachkovskaia M.D. (Yakutia), Pyryrco N.A. (Yamalo - Nenets autonomous District) and others. The history of numbering the peoples of the world, folklore and local history problems of the peoples of Russia living in Adygea, Astrakhan and Arkhangelsk regions are well represented in the works of N.I. Merlina; organization of independent work of humanity department students in the study of the course "Mathematics and Informatics" on the basis of historical, folklore and local history mathematical problems is covered by Kartashova N.A. and Merlina N.I., the origins of mathematical knowledge and understanding of the peoples of the North, from the point of view of mathematics teaching methods on folklore and local history material about Yakutia are set forth in the works of A.I. Petrova (the Yakuts), Diachkovskaia M.D. (the Yukagirs) and Pyryrco N.A. (the Nenets), studies of Tereshkina G.D. are devoted to the organizational-pedagogical conditions of the Russian North-East nomadic peoples' specialized education. The considered aspect − the inclusion of the specialized course "Ethnomathematics of indigenous minorities of the North" in the professional training of future mathematics teachers, was not considered in previous studies. In our work we have tried to systematize traditional knowledge of the indigenous peoples about the world as a distinctive ethnic value stored in the religious, cultural, socio-historical, family traditions and to correlate it partially with the history of elementary mathematics.

5. Conclusion

In the tutorials of Diachkovskaia M.D. and Pyryrco N.A. the history of the mathematical culture in the life and folklore of the Northern peoples is described. In the folklore the objectivity of the world is seen not in the usual to a modern man theoretical formulation: "the matter is primary, the cconsciousness is secondary", but in a form of a series of generalizations from the practice of life: (a) the numerals constitute a vast reservoir of folk vocabulary of the Northern peoples that contributed to the formation of a numeric range; empirically, the first concepts of mathematics are in the

basis of the economic activities of the indigenous peoples of the North; b) oral numbering of the Northern peoples was based on binary, ternary, fivefold, nonary, decimal, and vigesimal number systems; c) there was an irregular, random matching between two sets of objects in the exchange; d) the peoples of the North had peculiar ideas about length measuring, volume, weight; d) the indigenous small-numbered peoples of the North have used the peculiar measurement units: they intuitively used the dimensions of parts of the human body; the capacity of items for household, transportation, storage, hunting, catching birds, etc.; e) the source of the content formation of nomadic education is a distinctive culture, i.e. the most significant forms of the experience of traditional farming transmitted from generation to generation. The proposed content of the regional-ethnic component of higher professional education of students in the field of "Teacher education" of the "Mathematics" profile meets the following principles: cultural congruence, analogy in the logic of correlation with the relevant concepts and terms of the mathematical science, the developmental education, where the kernel is the axiological aspect – the interiorization of the cultural and historical heritage of the indigenous peoples of the North; problems on folklore, local history and historical material of the indigenous minorities of the North are used as a means of educational activity of students in mastering mathematical knowledge, in which the learning of the content is in unity with the creative work of extraction of scientific information in the focused intellectual work on the composition of a wide range of mathematical problems; the cognitive activity is expressed in the formation of value systems and in the conscious mastery, preservation and enhancement of the life experience of the indigenous peoples of the North.

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Theoretical Review of Scientific Approaches to Understanding Crisis Psychology

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Abstract

The importance of the studied problem is conditioned by the fact that the problem of psychological crisis and its solutions steadily attracts attention of both domestic and foreign researchers from various spheres of the scientific knowledge (psychology, philosophy, pedagogics, and sociology). However, the insufficient development of the psychological crisis concept in theoretical and, in particular, in the empirical aspect contradicts the high practical value of this problem when it comes to the psychological knowledge. The purpose of the article is to define the concept of psychological crisis. In our theoretical and empirical studies we assume that "experiencing psychological crisis" by the individual represents a complicated multidimensional phenomenon that develops depending on various circumstances of life. Possessing intrapersonal and social components within its structure, the phenomenon of psychological crisis has multiple interpretations and draws attention to investigations of both social and psychological factors, and personal matters that define the given phenomenon. Considering the multidimensional character of the studied object, the leading approach to the investigation of this problem is represented by the integrative interdisciplinary approach, based on contemporary domestic and foreign researches in the sphere of general, social and penitentiary psychology, cognitive science, mathematical psychology and other study concepts. The main goal of the article is to define the psychological crisis concept and to work out a methodological program for empirical study. The content of this article shall be useful when applying the empirical studies in the sphere of psychology of experiences.

Keywords: *psychological crisis, risk of suicidality, difficult life situations, personal semantic sphere and sphere of the values, cognitive attributes, crisis experience, personal and adaptative potential, hardiness.*

1. Introduction

The problem of psychological crisis is constantly attracting attention of both domestic and foreign researchers from various spheres of the scientific knowledge (psychology, philosophy, pedagogics, and sociology). However, despite its wide use in the scientific literature and on practice, the concept of psychological crisis remains poorly developed from the theoretical viewpoint. Nowadays the methodology of a given problem does not possess a unified basis, and is founded on a number of separate concepts (Freud, 1991; Adler, 1995; Perls, 1997; Assagioli, 1994; Rogers, 1994, etc.); the concept of crisis has no accurate dictionary definition (Meshcheryakov, Zinchenko, 2003) that is, firstly, an abusive neglect, and secondly, testifies to the poor structure of scientific knowledge concerning the psychological crisis matter. Thus, the insufficient development of the crisis issue contradicts the high practical value of this sphere of knowledge.

Usually the empirical studies of psychological crisis were conducted within a certain "vacuum" surrounding, disregarding the real social situation, which an individual find himself in, and cognitive functions of a person.

Moreover, in the sphere of contemporary psychological science there is no the common viewpoint concerning neither the essence of such terms as "complexity"/"difficulty" and "situation", nor their structural and substantial content, and attributing the complexity status to these situations. Each one of the given concepts is controversial; however, there are very few fundamental integrative works capable of giving more or less strict scientific clarification to the abovementioned terms.

2. Methodological Framework

The article of E. Lindemann (1984), dedicated to the acute grief analysis, is considered to be a starting point of the crisis psychology study. J. Jacobson (1974) dealt with distinctive features of the crises' theory. It was J. Kaplan (1963) who described four consecutive crisis stages. Today the leading European scientists also work on development of the similar problems connected to the psychological crisis experience within various aspects. The analysis of empirical studies conducted by the European researchers makes it possible to speak about fragmentary nature of the problem under study and explicit "psychiatric" approach when explaining the origin of psychological crisis and its symptoms. For instance, Professor Clark and his colleagues from the Oxford University study the psychological disturbances of the individual which are the result of psychological crisis experience; scientists from the University of Ulster (Great Britain) work on the factors and mechanisms of intimidation as well as on a victimization problem at school that can lead to a crisis development. The problem of studying an addiction which is as result of crisis experience is more acute for France. A. Quiamzade from the Geneva University (Switzerland), studies the attributive processes which, in our opinion, can be a factor of perception of a situation as critical and irresolvable one. The empirical studies of the American scientists are concentrated on mostly studying of a place of various factors when a crisis situation arises. For instance, there are the studies conducted at the University of Kansas dedicated to a problem of direct and indirect aggression at children's and teenager's age that can cause the crisis outbreak. The work of the American psychological association specialists is focused on studying of problems of risk assessment accuracy for recurrence of sexual violence, abuse at school and psychosocial factors that can contribute to the crisis development. Jean-Paul L'Huillier from the University of Massachusetts, the USA, and Malia F. Mason, Michael W. Morris from Columbia University, the USA, investigate various cognitive processes that, in our opinion, can form a certain view of life situations and their interpretation as simple or critical.

The concept of social deviations of R. Harre (1977) and the voluntary risk behavior theory of S. Ling (1993) are worth mentioning as well. The studies of these scientists allow estimating the consequences of psychological crisis experience. At the University of Virginia they study the sources and mechanisms of morality and ethics (The Origins of Morality) which, in our opinion, can lead to a certain view of the arisen problems and, thereby, inhibit the psychological crisis formation.

The matter of psychological crisis is interdisciplinary problem and draws attention of both philosophers and psychologists at all times. During the era of economic turbulence embracing public misbalance, this problem becomes particularly important for the psychological aid to the people, who are in crisis, as well as for the serving theory. The broad social context of psychological science defines the main branches of its development, inducing researchers to the analysis of various forms of the diverse crisis phenomenon on each stage: problems of freedom and responsibility (Maslow, 1982; Rogers, 1994; Frankl, 1990; Yalom, 1999; Langle, 2010), problems of loneliness (Fromm, 1992), problems of existential vacuum (Frankl, 1990), etc. Crisis as a landmark in life, as a milestone event, which gives to a person, on the one hand, possibilities of achievement of new tops, and on the other hand, risk of falling into the abyss, serves as a key category for understanding of a phenomenon of a personal life journey (Rubinstein, 2004; Abulkhanova-Slavskaya, 1991).

It is worth noting that, if based on the views of many contemporary authors, the psychological crisis condition can develop extremely fast, nearly instantly (for example, when getting the news of someone dear's death), or can be formed gradually starting with a stress state (Zagaynov, 2007; Vasilyuk, 1984). In the scientific world the great attention is paid to the analysis of critical situations that, as according to the classification of F.E. Vasilyuk, domestic scientist, (1984), are divided into stressful, frustrating, conflict and crisis ones. In his works, in "Experience of a grief", in particular, F.E. Vasilyuk described fast formation of psychological crisis. F.E. Vasilyuk interpreted the notion of crisis as a personal collision with the overwhelming obstacles, such as loss of the loved one, job loss, and health breakdown. F.E. Vasilyuk called the overcoming process as "experiences", having filled this term with new sense. Earlier the experience was connected to the emotion that reflects the relation to a person or a factor causing it. F.E. Vasilyuk considers experience to be an intrapersonal work on serenity of mind recovery, adding a new sense to the human activity after overcoming the critical situation. R. A. Akhmerov (1994) introduced into psychology the concept of the personal biographic crises. By the biographic crisis he meant a peculiarity of an inner world of a person which is expressed in various forms of personal emotional experience caused by "non-productiveness' of his/her life journey.

Most authors agree that the psychological crisis can develop from a growing stress condition (Nayenko, 1976; Nemchin, 1983; LKitayev-Smyk, 1983). There are several approaches to the stress factors study in foreign psychology. First is the approach based on the essential life events study, according to which any change affecting human life dramatically is stressful and requires adaptation. According to this approach the essential life event represents a discrete

change in the social and personal surrounding of a subject. Second is the approach in which chronic stress factors are investigated, and emphasis is put on stressors that can be found in everyday life of the person, but may not seem to him as an annoying trouble. The third is transactional approach, developed by the R. Lazarus (1973), involves studying of difficult everyday life situations. He and his colleagues criticize the previous approaches for their limited ability to predict the illness and poor interpretation of the processes through which the life events may influence health status.

Some authors assume that critical condition can develop under frustration (Silbermann, 1974; Levitov, 1964) or the inner personal conflict (Afonkova, 1974; Yashchenko, 1969). The inner conflict presupposes rather complicated inner world of a person and compliance of this world to the life requirements.

In foreign psychology conflict situations have been investigated within various approaches. For instance, the authors of the psychodynamic concept define conflict as the actualization of two and more motives arising simultaneously. Behaviourists claim that it is possible to speak about the conflict only when there is an alternative opportunities for reaction. Cognitive approach followers claim that the consciousness phenomena clash within a conflict. Domestic authors also contributed a lot to the development of this problem, being based on the activity approach of psychology.

Heavily based on I.R. Konzhin's (2003) works, we are offering the following scheme of development of a difficult life situation capable to lead to a psychological crisis. The principal constituent of a difficult situation is a desire or need that meets objective hardship. The vain attempts to overcome this difficulty lead to a growing mental stress. Within the process of situation development the need importance is estimated that leads to the situation being perceived as complicated, and shifting the motive of a need realization to that of overcoming a difficult situation. Implementation of a strategic choice can come into a need realization and changing a situation, personal contentment from overcoming the hardship.

Despite the fact that there exist various approaches to the psychological crisis development, mental stress and complexity of a situation are its common features. Mental stress shows the peculiarities of mental activity by influencing it when acting in difficult situations. It is complication of the activity conditions that become especially important for a person.

We understand a difficult situation as a set of the objective and subjective characteristics that are gathered in the extremely negative emotional experience of a subject. However, it can be stated that the person's behavior in a crisis situation (constructive overcoming, change of attitude, value sphere and semantic sphere, and, as possible consequences, suicide, deviant behavior, etc.) depends not only on the objective situational characteristics, but also on the subjective perception by the personality that allows the contemporary researchers study the attributive processes of the individuals finding themselves in a psychological crisis.

Thus, ***the state of psychological crisis leads to the full or partial transformation of the personality of an adult, and in the case of a teenager it leads to the peculiar personality formation and the peculiar formation of process of learning of the world.***

For example, from the researchers' viewpoint, experiencing the psychological crisis leads to transformation of a personal value system. The great attention within the frames of philosophy is given to the development of the value system's problems (Tugarinov, 1960; Zdravomyslov, 1996; Drobnitsky, 1967; Vyzhletsov, 1978; Zamotayeva, 2004). The clash of value system with the situation assessment, personal unwillingness to uphold the life values and realize them in uncomfortable conditions can lead to the following consequences: the clash of values causing the lowering of the aspiration level; value system not matching with the personal opportunities and abilities that causes searching of change of the situation; the complicated situation leads to a difficult transformation of all the value system; the difficult situation leads to dissimulation; failure to realize the life values leads to the personal passivity.

A large number of works, both in domestic, and in foreign psychology is dedicated to a problem of value system (Havighurst, 1976; Kohlberg, 1976; Lerner, 1988; Davis, 2003; Mid, 1988; Vasina, 1993; Sayko, 1986; Kirillova, 2000; Molchanov, 2007; Dyudyukina, 1998; Yakimovich, 1990; Bochkaryova, 1980; Yanitsky, 2000; Luneev, 1986; Zvyagina, 2006; Plugina, 2005; Vasilyeva, 1997; Kovalyova, 2003; Stepanova, 1998; Svetlova, 2003; Shestopalova, Perevoznaya, 2003; Bolotova, 2001; Smotrova, 2005; Gritsenko, 2009; Zubova, 2007). The following works are dedicated to the study of structure of the value systems' age dynamics, their relations with the personality characteristics, individual and typical features, professional orientation: E.F. Rybalko, 1974; N. A. Volkova, 1983; V.A. Tokareva, 1989; I.V. Dubrovina, 2003; T.G. Sukhanova, K.D. Shafranskaya, 1982; V. N. Kunitsyna, 2010; N. B. Nesterova, 1984; E.A. Vasina, 1993. There is a branch of study devoted to the investigation of value system that finds the connection between the teenagers' problems of values and those of communication (Dodonov, 1978; Prokopyev, 1987; Gurina, 1995; Ratinov, 1967). Idea of a personality value system as a hierarchy of his/her beliefs is highly spread in the American social psychology (Rokeach, 1973; Schwartz, 1987; Bilski, 1990).

Experience of psychological crisis can lead to change in the personal attitude, or (as in case of teenagers) formation of the deviant attitude. The fundamental studies of the attitude within a personality system can be found in foreign (Allport, 1958; Rokeach, 1973; Festinger, 1957; Znanetsky, 1981; Thurstone, 1928; Myers, 1996; Smith, 1947; Katz, 2005 and many others) as well as in domestic social psychology (Asmolov, 1990; Uznadze, 1966; Andreyeva, 1978; Nadirashvili, 1987; Feldstein, 1994; Devyatkin, Yadov, 2002 and many others).

Change of personal attitude as a result of the experience of psychological crisis by the subject can lead to the formation of delinquent behavior. For instance, in judicial and penitentiary psychology the problem of psychological crisis among the convicts when enduring the punishment is generally considered as a problem of studying of the prisoners adaptation abilities in custody (Antonyan, 1998; Guldan, 1991; Debolsky, 1994; Efremova, 1988; Kudryavtsev, 1989; Morogin, 1997; Pozdnyakov, 1998; Ratinov, 1967; Samovichev, 1986; Filonov, 1966; Denhoff, Kikkendall, Nye, 1973, etc.). The separate questions connected to the problems of disadaptation, adaptation and readaptation of a personality in prison are reflected in works of the pedagogical psychologists (socialization in the complicated environment), judicial psychologists (psychological essence of crime and punishment), penitentiary psychologists (psychology of a person serving a sentence) (Berezin, 1978; Belichev, 1993; Korolenko, 1972; Sokolov, 1989; Panin, 1981; Ushatikov, 1998; Aleksandrovsky, 1996; Alferov, 1993; Gernet, 1925; Eminov, 1998; Potemkina, 1993; Antonyan, 1998, etc.). However the analysis of scientific literature allows claiming that when studying the most difficult problems of psychological crisis the question of specific character of the social and personal resources of the convicts providing the efficient process of overcoming the stressful influence of the prison environment is nearly neglected.

Experience of psychological crisis can also lead to the self-injurious behaviour of a personality. The problem of self-aggressive behaviour became recently one of the most actual problems in psychology and psychiatry. As many authors believe, heteroaggression and self-aggression possess common pathogenetic mechanisms, and the shaped aggressive behavior can spread either on people around, or to the person itself. For this reason the self-injurious behavior is considered not only as the actions aimed at causing some damage to the somatic or mental health but also as an alternative for the aggressive behavior in which the subject and the object of aggression coincide (Ambrumova, Tikhonenko, 1980; Bacherikov, Zgonnikov, 1989; Pilyagina, 2004). There is no doubt that one of the types of self-aggressive behavior is the self-injurious (self-destroying) behavior at which the voluntary death isn't considered to be a goal. According to many scientists one of the reasons for self-injurious behavior is the problem of identity crisis (Agarkov, 1993; Vasilyuk, 1984, 1995). According to the crisis theory of J. Kaplan (1963), psychological crisis is considered to be a personal state caused by facing an obstacle that the person is unable to overcome using the means he/she knows about at the present moment. In this situation the homeostasis state is broken, and the psychological mechanisms necessary for its preservation do not work, and, thus, come the feelings of confusion and chaos in internal life. Being in such condition the person is disposed to choosing the self-injurious way of overcoming of crisis.

With its relative independence the concept of crises owes not so much to the theoretical peculiarities, as to the practice of a short-term and generally available (unlike expensive psychoanalysis) psychological-mental aid to a person found himself in a critical situation, which is being highly developed in many countries. This concept is an integral part of the mental health service, crisis preventative programs, etc. explains both its obvious advantages such as direct interchanges with a practice, clinical specificity of the concepts, and not less obvious shortcomings such as eclecticism, poor development of its own system of categories and not clear connection between the concepts in use and the academic psychological representations. Therefore it is still too early to talk properly about the psychological theory of crises. However we make will venture to claim that the category of the individual life, which shall be understood as unfolding unity, as a course of the personal life, has to become a backbone category of this future concept (if it is bound to be developed). Strictly speaking, a crisis represents the crisis of life, the critical moment and a landmark of a life journey.

3. Results

Though the problematics of individual life crisis has always been in the field of attention of humanitarian thought as well as psychological, the theory of crises has emerged on the psychological horizon rather recently as an independent area of research developed generally within preventive psychiatry. The theoretical review of literature of domestic and foreign authors enables us to draw the conclusion on the lack of uniform approach to understanding crisis psychology and crisis experiences. In this regard we consider the interdisciplinary empirical study devoted to investigation of factors, indicators and determinants of psychological crisis to be necessary. Taking into account the fact that any crisis contains both a positive, and a negative constituent, and can be resolved in various ways including destructive ones, the special attention while drawing up the program of empirical study needs to be paid to identifying suicide behavior of the personality as to a

way of resolving a crisis life situation, and also to intra personal trigger mechanisms of suicide, to personal and social, psychological factors, causing a choice of self-injurious forms of behavior. The investigation focused on studying social and psychological crisis experience determinants, devoted to a problem of the analysis of causal attribution process in difficult real life situations which directly influences emergence and dynamics of psychological crisis of the personality has to be the other area of research, in our opinion. Along with it research interest has to be concentrated on studying the resources of the personality enduring psychological crisis, in particular on a problem of hardiness which belongs to the categories of psychology that expand the explanatory potential of phenomenology of formation, the personality adaptation, coping behavior and the solution of the difficult life situations that the person faces.

Thus, the need of conducting empirical study of a problem of crisis psychology is determined by its interdisciplinary character and attempt to conduct cross-disciplinary research of contemporary psychology (psychology of the personality, social and clinical psychology). That will allow us to unite such problem areas of study as psychological crisis, suicide risk, the valuable and semantic spheres of the personality, attributive processes, and hardiness of the personality and personal resources of recovery from the crisis. Considering the importance of a practical component in contemporary psychological science, importance of studying the declared problematics is determined also by that fact that the identification of social and psychological suicide factors or, on the contrary, success factors of the person's adaptation in present life conditions, can be used in organizing various forms of effective psychological assistance for the purpose of "coping" with difficult life situations.

To solve the designated problem we developed a program of empirical investigation based on the combination of the following methods:

1. **The theoretical analysis of the existing concepts,** approaches to the problem of psychological crisis, hardships and attributive processes of the personality, phenomenology of suicidal behavior, resources of the personality in overcoming psychological crisis;
2. **The empirical informationcollection** characterizing and reflecting the research problem (psychodiagnostic instruments, interviewing, survey, observation).

The structure of the psychodiagnostic part is conditioned by certain empirical research tasks with the use of the following psychodiagnostic instruments:

- the Sixteen Personality Factor Questionnaire by Raymond B. Cattell (16PF), C-Factor (Emotional Stability) aimed at studying individual psychological features of the personality;
- the Rokeach Value Survey (RVS) aimed at studying the personality orientation (terminal and instrumental values);
- the morphological test of vital values (MTGZ) tested by V.F. Sopov and L.V. Karpushinadirected at studying motivational and valuable personality structure. Value systems (*A personality profile*) and universal basic human values (*The review of values*) serve as estimation scales;
- the questionnaire of studying personality values by Sch. Schwartz (tried out by V. N. Karandashev) aimed at studying individual personality values. Vital fields and vital human values serve as the estimation scales;
- the technique of polymotivational tendencies diagnostics in *I-concept* of the personality by S. M. Petrovdirected at studying the motivational sphere of the personality;
- the multilevel personal questionnaire *Adaptability* (MLO) by A.G. Maklakov and S.V. Chermyanin aimed at studying psychophysiological, social and psychological characteristics of the personality (personal and adaptive potential);
- self-relation questionnaire (OSO) by V.V. Stolin and S.R. Pantileyev aimed at the personal self-relation study;
- the limiting meanings method (TLM) by D.A. Leontyev and V.N. Buzin oriented to the study of the dynamic semantic systems (DSS) of the personality. The estimation scales are limiting categories (meanings) of personal world outlook;
- the modified version of the repertory grid by George Kelly aimed at the study of causal attribution processes and self-attribution;
- the experimental psychological technique of studying the frustration reactions by S. Rosenzweig oriented to identification of causal attribution types;
- *the Interpersonal Diagnosis of Personality* by Timothy F. Leary aimed at studying self-attribution processes. The subjective well-being scale was used as an accessory instrument for studying self-attribution;
- hardiness test by Salvatore R. Maddi (adapted by D.A. Leontyev);
- *the technique of Training motivation in higher education institution* by T.I. Ilyina directed at determining educational professional activity motives;
- biographical method;

3. **the methods of statistical analysis of obtained results** including the use of the following statistical methods:
   - the Mann–Whitney *U* test;
   - Student's t-test by William Sealy Gosset;
   - theKolmogorov–Smirnov test;
   - The Wilcoxon signed-rank test;
   - An *F*-test by Ronald A. Fisher;
   - the Pearson product-moment correlation coefficient;
   - Factor analysis by means of principle component analysis with the curve of factor axes by means of Varimax method.

Initial methodologic positions, tried out instruments, research representativeness of sample and statistical analysis of the results with the use of the computer statistical analysis programs provide reliability and validity of the study results.

The choice of the mentioned research techniques is conditioned by the fact that the mentioned techniques allow to study all the constituents of living through the psychological crisis process, representing a wide and various range of research instruments.

Work plan;

Stage 1.

An important part of the developed program of empirical study is a thorough preparation for developing the complex theory of the studied psychological crisis phenomenon and practical investigation, the analysis of the existing theoretical basis of the existing preliminary studies. This will allow us to determine the weak points of already existing theories and to specify the features of our empirical study realization.

The focus of our interest covers various difficult reality situations connected with such fields as family, work, study, leisure activities, intimate and personal relations, relaxation. The researches in this field may be used theoretically, which allows to reveal the evident and latent schemes of cognitive process in critical situations and their conditions.

Certain types of activity at the first stage of the project implementation: The analytical review of applied research material on the outlined problem. The development and specification of the methodical instruments, the instruments' preparation for the investigation (test forms, the order of testing techniques, the materials' replication).Organizational preparation of the empirical study (making direct contacts and arrangements with the organizations where all the investigation phases will be carried out).Sampling procedure.The study of documents (medical reports in the toxicological department of Ulyanovsk emergency hospital, criminal cases), interviewing and inquiring the staff of the Sentence Execution Department.Pilot studying.Primary processing of results.Preparation of the publications according to the theoretical analysis results.

As a result of our activity at the first stage we are going to:

- analyze theories of the Russian and foreign authors covering the problem of psychological crisis experience, cognitive attributes of the process, suicidal risk and hardiness;
- examine the reality situation concepts in modern science thoroughly;
- correct the plan of all psychological crisis constituents' investigation on the basis of theoretical material;
- -thoroughly examine concepts of personal adaptive potential and personality measures' dynamics in contemporary science;
- -specify the psychological crisis concepts, suicidal risk and hardiness concepts in the context of penitentiary psychology; determine overcoming factors of the prison environment psycho-traumatic influence ;
- study thoroughly the theoretical and empirical methods determining features and mechanisms of the personality's adaptation processes of a convict and criminal behaviour strategy in the conditions of imprisonment in the context of crisis psychology;
- correct on the basis of theoretical and empirical materials the investigation plan of the problem covering the psychological crisis experience by a convict (existential crisis, loneliness crisis, social isolation crisis, etc.);
- prepare the interim study report.

Stage 2.

The second stage of the mentioned project implementation is an empirical stage and, definitely, the most important one. Being implemented according to the preliminarily prepared plan based on the conclusions made at the first stage, and the concepts introduced while working out the investigation structure, it allows us to state, with proper approach to information processing, about the achievement of potentially significant results.

Certain types of activity at the second stage of the project implementation:

Complex empirical investigation on the basis of Ulyanovsk emergency hospital, the regional mental hospital named

after N.M. Karamzin, Novoulyanovsk Federal Penitentiary Service of the Russian Federation, Ulyanovsk and Dimitrovgrad psychological assistance centers, particularly the investigation of personal, social and psychological features of the people overcoming psychological crisis, the emotional and volitional field, the valuable and semantic field, personal and adaptive potential of various examinee categories (suicides, disabled people, prisoners), identification of anti-suicide potential factors of the personality, social and psychological factors of a personal suicide choice, suicidal risk factors of the personality.

The investigation results at the second stage will be the following:

- the empirical and experimental investigation programs directed at cognitive attributes' identification in difficult reality situations will be developed;
- thepilot and main study in all directions of the project implementation will be conducted;
- thepsychodiagnostics of all examinee categories with the use of the mentioned methodical instruments will be carried out;
- on the basis of the obtained results preliminary conclusions will be drawn;
- the interim study report preparation.

Stage 3.

The third stage is the final stage and it is connected with the interpretation of the obtained results and their use in certain conclusions for particular human activity fields. These conclusions may be checked by means of additional empirical investigations so that one could be sure of their relevancy and could develop recommendations for application.

The obtained data processing, its systematization and interpretation will allow to prove statistically the conclusions' validity on the basis of which there will be developed attribution patterns in difficult reality situations, psychological crisis overcoming pattern and the choice of the way to overcome it, and vital resources pattern as ability to adapt to the community life norms in the form of emotional and sensual experience.

The investigation results at the second stage will be the following:

- on the basis of the theoretical and empirical investigations the main conclusions in all directions of the project implementation will be drawn;
- the cognitive attributes and factors by means of which the individual identifiesthe degree of situation complexity will be determined;
- the recommendations for weakening possible negative consequences and weakening certain negative cognitive attributes in difficult reality situations will be developed;
- the pattern of attribution in difficult reality situations will be developed;
- the psychological crisis overcoming pattern and the choice of the way to overcome it will be developed;
- the pattern of vital resources as abilities to adapt to the community life norms in the form of emotional and sensual experience will be developed.

4. Discussions

Our analysis of theoretical and empirical studies, conducted by both Russian and foreign authors, allows us to draw a conclusion that now the personal crisis problem, despite its wide use in special literature and practice, remains insufficiently developed in the theoretical aspect. Based on a range of separate concepts the outlined problem methodology has no universal criteria. The crisis concept has no accurate dictionary definition. The psychological crisis development and dynamics are also viewed by different authors in different ways. Many modern authors consider that psychological crisis may develop very rapidly, almost instantly (e.g. after the death of a beloved and significant person), or it may be formed gradually, stimulated by a stressful condition.In the different theories different factors are considered to be the determinants, causing the development of psychological crisis. These can be stressors (according to Nayenko, 1976; Nemchin, 1983; Kitayev-Smyk, 1983), frustration (Zilberman, 1974), internal conflicts (Afonkova, 1974; Yashchenko, 1969), period of facing obstacles (Kaplan, 1963). The concepts of psychological crisis experience, worked out by both the Russian and foreign scientists are also different. Some of them consider that experience of psychological crisis causes the alteration of the personal value system (Tugarinov, 1960; Zdravomyslov, 1996; Drobnitsky, 1967; Vyzhletsov, 1978; Zamotayeva, 2004). Experience of psychological crisis can change personal attitude, or cause development of (speaking about teenagers) deviant attitude (Gordon Allport, 1958; Rokich, 1973; Festinger, 1957; Znanetsky, 1981; Louis Thurstone, 1928; David Myers , 1996; Smith, 1947; Katz, 2005; Asmolov, 1990; Uznadze, 1966; Andreyeva, 1978; Nadirashvili, 1987; Feldstein, 1994; Devyatkin, Yadov, 2002 and many others). The change of personal attitude as a result of psychological crisis experience can cause development of delinquent behavior (Antonyan, 1998; Guldan, 1991; Debolsky, 1994; Efremova, 1988; Kudryavtsev, 1989; Morogin, 1997; Pozdnyakov, 1998; Ratinov, 1967;

Samovichev, 1986; Filonov, 1966; Denhoff, Kikkendall, Nye, 1973, etc.). Psychological crisis experience can also stimulate self-injurious behaviour of the personality (Ambrumova, 1989; Tikhonenko, 1980; Bacherikov, 1989; Zgonnikov, 1989; Pilyagina, 2004; Agarkov, 1993; Vasilyuk, 1984, 1991, 1995).

However, despite the variety of approaches to psychological crisis, we consider that its universal criterion is *mental tension and situation complexity*. Mental tension expresses the features of mental activity in difficult conditions in the process of action. It influenses the efficiency of mental activity complicating the activity conditions which gains in particular importance for the personality. The scheme of a difficult reality situation which can cause psychological crisis, in our opinion is the following: difficult reality situation is the result of the clash between the need and the objective obstacle. Unsuccessful attempts of overcoming the obstacle result in the growth of mental tension. As the situation develops, the importance of needs is estimated which makes the individual consider the situation as a difficult one, the motive of need implementation is changed by the motive of overcomingthe most difficult situation.The strategic choice may come to the need implementation and the situation changing, personal satisfaction from overcoming the obstacle. We consider the difficult situation as a set of objective and subjective characteristics presenting together an extremely negative emotional experience for the individual. Besides, the individual behavior type in a crisis situation (constructive overcoming, change of attitudes, change of valuable and semantic field and then possibly a suicide, deviant behavior, etc.) depends not only on objective situation characteristics, but also on the subjective perception of the personality which makes scientists now study attributive processes of the individual in psychological crisis.

Thus, the psychological crisis causes full or partial transformation of the adult's identity, and speaking about the teenager's identity – to a peculiar personality formation and a peculiar way of world perception.

The concept of crises owes its relative independence not so much to its own theoretical features, but to the fact how much its constituents become part of a short –term practice intensively developing in many countries and available to broad segments of the population (unlike expensive psychoanalysis) psychological and mental health services to the person who found himself in a critical situation. This concept is inseparable from the service of mental health, crisis and preventive programs, etc. that explains both its evident advantages – direct interchanges with practice, clinical concretion of concepts, and not less evident shortcomings – eclecticism, lack of its own system of categories and non-elucidation of the link between the used concepts and academic psychological conceptualization. Therefore, it is too early to tell something about the psychological theory of crises in the true sense. However, we are so bold as to state that the category of the individual life which is understood as the unfolded whole, as a course of life of the personality has to become the cornerstone category of this future concept (if it is destined to take place). As a matter of fact, crisis is a crisis of life, the critical moment and a turning point of a course of life.

5. Conclusion

The made review of theoretical and empirical studies on a problem of crisis psychology allowed us to draw the conclusion that the problem of psychological crisis and ways of its solution are steadily attracting attention, of both domestic and foreign researchers in various areas of scientific knowledge. However, the insufficient investigation of the concept of psychological crisis in theoretical and especially in the empirical plan is in conflict with the high practical importance of this problematics in psychological area of knowledge. This fact testifies to an urgent need of conducting the empirical studies devoted to "experience of psychological crisis" by the personality as a difficult multidimensional phenomenon, differently shown in various life circumstances. Implementation of the presented program of empirical study will allow to fill the shortage of both theoretical, and empirical character which arose round the investigation of problematics of "psychological crisis".

6. Recommendations

Materials of this article can be useful to practitioners -psychologists, suicidal behavior specialists and scientists working with the inner world of a person.

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Design of Subject and Developing Environment of Preschool Education

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Abstract

Relevance of the problem being researched in this article is due to the need of introduction new pedagogical technologies into the system of preschool education. The article is aimed at summarizing the first experience of design subject development environment of pre-school education laboratory established on the basis of Yelabuga Institute of Kazan Federal University. Special emphasis in the Laboratory is given to developmental subjects designed, manufactured and tested by the members of the Laboratory to determine their effectiveness in the game oriented at cognitive-developmental activities of children aged from 3 to 6-7 in kindergarten and beyond, allowing to form a fully versatile developed person. The article can be useful for educators, instructors of preschool educational institutions and rehabilitation centers in the work with children of preschool age.

Keywords: *design and subject laboratory of environment preschool education development, preschool age, educational environment, educational toys, kindergarten, game.*

1. Introduction

Nowadays Russia is experiencing new reforms in the education system at all its levels. An important and integral factor in this context is the increase of quality and efficiency especially in pre-school education, which is the first stage of education on the whole.

Theoretical basis of subject development environment of preschool education research problem in Russia is primarily determined by regulatory and local documents adopted and implemented both at regional and federal levels.

One of the main documents regulating activities of educational organizations in Russia,the Federal Law of the Russian Federation «On education in the Russian Federation» (2013), was implemented on the 1-st of September 2013.

As a result of its analysis, we have identified that educational institutions, including pre-school, should carry out educational activities with regard to the requirements of federal state educational standard, as well as exemplary educational programs of preschool education; should identify and retain a variety of educational publications, the use of pedagogically sound ways, means, methods of training and education; right on creativity, development and application of original programs and methods of training and education used in implementation of educational programs for preschool education and in accordance with article 13 when implementing educational programs can be used in a variety of educational technologies.

Today science pedagogy has an incredible amount of educational technologies, which are much wider than method itself. M. Kohler, and P. Mishra (2009) define them as complex interaction between three areas of knowledge: content, pedagogy and technology. The effectiveness of learning, in their opinion, depends on knowledge of technology. While the very basic concept of «technology» is interpreted as «newer», which allows understanding of more complex things by using simple methods (Kalimullin , 2014; Kalimullin & Gabdilkhakov, 2014; Telegina et al., 2015).

Some of technologies are summarized, grow out of theory, while the others are practical result of research, and as for still others they have originated at the intersection of theory and practice. In any case in pre-school educational institution applied learning technologies should be aimed at reducing the «energy» on the part of an educator, the development of motivation and commitment to self-development, self-knowledge with the psycho physiological conditions of children' s development. Brian D. Cox (2009) states: «Teaching methods, typically based on fixed assumptions about mind of a child to learn».

Educational psychology (Stolyarenko, 2004) defines eight periods of personality's formation depending on views of leading activity. Pre-school age, considered by us, appropriates for early childhood (3-6-7 years old). According to E. I. Ilyin (2002) 3-5 years-old children get pleasure from the game, while in half of the cases 5-years-old children prefer

games of those who are interested to play, and at the age of 5-6 children not only gain pleasure from the process, but from results of the games.

In this regard, as noted by V.P. Valkova, children at the age of 6 -7 approach more differentially to the choice of partners in their games, calling several reasons: their ability to play in a group, ability to play well, their creative abilities in the game, assisting in the process of the game (Rybalko, 1990).

A game is the basis of teaching young children. During the game a child using a toy can get a lot of valuable learning opportunities for learning. Angie Rupan, a coordinator of «The child development Center in South San Francisco», (Трейси Geiser, 2013) says: «While playing, children begin to understand and process the world». Having worked more than 20 years as an educator of early childhood, she confirms the following: «Children's game opens their creative potential and imagination, develops reading, thinking and problem solving skills, as well as motor skills. It forms the basis for learning».

From this we can conclude that leading activity for children of preschool age is a game aimed at cognition of surrounding world, formation of attitudes and development of relationships between peers and adults (teachers, educators, parents, family members, and so on). When designing educational environment and selecting technologies of work with children of preschool age, we will focus on teaching AIDS which would contribute to the development of children and their social adaptation in modern conditions in the process of playing a game.

2. Methodological Framework

In order to create conditions for implementation of innovative educational projects and programs of preschool education in accordance with the Federal Law of the Russian Federation «On education in the Russian Federation» and in accordance with the Charter of the Federal state Autonomous educational institution of higher professional education «Kazan (Volga region) Federal University» design and subject laboratory of environment preschool education development was established in Yelabuga Institute of Kazan Federal University.

It is said in the most modern encyclopedia the following (Rapacewich, 2005): «Design and subject laboratory of environment preschool education development was established by the charter of the federal state autonomous educational institution of higher professional education «Kazan (Volga region) Federal University» in Yelabuga institute of Kazan federal university».

The main tasks of design and subject laboratory of environment preschool education development of Yelabuga institute are the following:

- conducting applied (including interdisciplinary) researches in the field of education;
- engaging teachers, students and graduate students of EI KFU in scientific research of the laboratory, use of research laboratory results in the educational process of EI KFU;
- training new programs of academic disciplines and teaching materials in the areas of training within the Faculty of Psychology and the Faculty of Engineering and Technology.

Having defined the methodology and goal setting of the Laboratory, we have compiled a work plan consisted of products subject domain-developing environment of preschool education, development of their design and manufacture for the first phase. At subsequent stages of the Laboratory development according to the plan we have to determine effectiveness of our development implementation in pre-school educational institution. In case of positive results of pedagogical experiment and recommendations of teachers, educators, parents, students and specialists it will be possible to direct our educational items for children of preschool age in mass production.

As any game is leading activity among preschoolers, there is a need in the objects defining educational and developmental and role play activities of children.

According to our observations, unusual items that are not often found at home attract children's attention.

In her own blog Kathryn Warner from Texas (2014) offers ideas on the organization of the educational environment of the child, she gives much attention to educational subjects, even to the way these toys and books are dispersed.

Today market offers a wide range of textile and educational products for children of preschool age, but not all parents and even educational institutions can buy them. Yelabuga Institute of Kazan Federal University with a solid base of training teachers has decided to test its capabilities in the creation and implementation of educational products. It is a new area for work and self-realization and some kind of development and experience for students. To determine up products we together with the students of engineering and technology faculty of EI KFU have studied objects of preschoolers' subjective activity. Basically the Internet offers development works of Montessori's school (2013), which has vast experience in various thematic research works of development and adaptation of a child in different social contexts. Alternative sites of finished products for child's education offer a wide range of products and different

methodological assistance to them (2003), the online shopping with entertaining and stimulating production (2011), which is aimed to develop interest in a particular area, such as music, photography, math, arts and crafts or language.

Having studied market and consumer of kindergarten students, we have set the subject of products. In the process of determining structural and functional components of educational products, we have taken into account the psychological and pedagogical requirements for games and toys in modern conditions (Sterkina, 1995): multifunctionality, possibility of using toys in joint activities, didactic properties of toys and toys ' accessory for Handicrafts. And educational toys should have instructions or guidelines, containing age targeting, methods or applications.

According to pedagogical significance of toys, they can be classified as follows (NARC, 2005):

- Toys for practice. In this category there are toys that can be arranged in different ways or require repetition of words or sayings;
- compound toys (from several parts). They include construction games, puppets and fretwork;
- Regulation toys. Such as board games, dominoes, chess, etc.

According to educators of municipal budget preschool educational institution «Kindergarten №3 «Teremok» of Yelabuga municipal district», kids prefer to play with such textile toys as home-transformers, lace, dolls, including theatrical costumes for role-playing games and others. Taking into consideration all requirements to modern educational toys, in our Laboratory we have performed a number of product models: finger toys, tactile gloves, lace, labyrinth, sorters, etc. Students of engineering and technology faculty, studying in areas of training 051000 Vocational training (by industry) program: Decorative and applied art and design; 050100 Pedagogical education, profile training: Technology; 030600 (050502) Technology and entrepreneurship specialization: Culture of house and decorative-applied arts. First we have elaborated and approved sketches, only after this work we have developed technological design documents specifying dimensions in natural size, defined compositional decision, justified the choice of material, manufacturing technology and design, and at last we have produced economic and environmental assessment of products. The work began with the creation of a product in a single instance, while doing it we consulted with educators and made relevant amendments.

3. Results

With the aim of obtaining an objective assessment of our product we exhibited it at the International training seminar named «Speech development of preschool and younger school age children: Russian, national and foreign languages», held in Izhevsk, on the 27 – 30-th October, 2014. Due to subjective evaluation of its participants, the most popular among all of them became a developing textile book, meeting all psychological and pedagogical requirements.

First, this educational book is polyfunctional. It can be used for tactile abilities and qualities development, as well as for motor skills formation, including small. Different tasks for identification objects, their mapping, functionality, which contribute to the development of creativity, imagination, motivation and other important qualities of effective preschool children performance, are presented in the structural content of the book.

Secondly, our authoring can be used in the joint activities of an educator (a parent) and a student. For example, such games as «Bunny-carrot» and «What does grow on the tree? » can involve a group of children (including an adult participant as a playing partner) and to initiate joint actions (collective buildings, cooperative games and others). Almost all pages of this educational book can be used by an educator as a visual aid in the classroom, because all pages can be easily removed with the basics and have loops which are used to hold this book or to attach it to the hook.

Thirdly, this textile book implements its didactic function fully, since it includes methods of teaching a child the process of lacing, skills with a variety of clasps and fittings, observing color, shape (geometric and spherical), development of speech and rhetoric.

Fourthly, this book is entirely a product of the author's execution, which can be attributed to the decorative and applied art, in which artistic composition and color are sustained; moreover this book consists of different handmade items, forming aesthetic taste and culture of a preschool aged child.

This developing book consists of 7 sheets; it is completely made of textiles and recommended for children at the age of 3 and elder. Practically at every page of this book (all in all they are 14) there are different subject compositions in color, made of different textures of fabric, equipped with stickers, buttons, lock-outs and drawstrings.

In the framework of joint regional workshop for educators of preschool educational institutions named «Interaction. Cooperation. Support» which took place on the base of municipal budget preschool educational institution «Kindergarten №3 «Teremok» of Yelabuga municipal district» on the 27-th of February 2015 we gave its participants chance to take part in the creative process.

The laboratory staff conducted a master class for participants of the seminar, where they tried to perform developmental finger toys «Teddy Bear» and «An owl».

They tried to create new images of these toys having found a basic shaping «keyhole». They liked the idea very much. Moreover in turn they suggested different ways of toys usage, which would contribute to the development of a preschool child personality at any age.

4. Discussions

During our studies of the products subject of development and environment of preschool education implementation in the framework of the Laboratory, we have determined its practical significance: the author's textile book for 3 – 6 - 7 years old children can be the basis for improving personal development of a preschool child.

Research on the subject of development and environment of pre-school education is not completed at this stage yet. Further elaborate of written instructions and guidelines of textile-educational books usage in the educational process of preschool education is being organized recently.

5. Conclusion

Students of Yelabuga Institute of Kazan Federal University, including members of design and subject laboratory of environment preschool education development during the execution of educational products for children of 3-6-7 had the opportunity not only to apply all types and techniques unit-to-unit processing, manufacturing and processing textiles, wood and ornamental materials they have studied, as well as to interpret. In the process of manufacturing the textile educational book students used machine and manual seams, they demonstrated a high level of artistic and design skills. Thus, a product of design and subject laboratory of environment preschool education development of Yelabuga Institute of Kazan Federal University has been applied: members of the Laboratory suggest a very useful product while students acquire skills and sharpen professionalism.

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Information Competence Structure and Content of the Higher School Students

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Abstract

For free orientation in the flow of information people should possess information competence as one of the components of professionalism. In this regard, the article reveals the structure and content of the information competence of students, including motivational and values, cognitive, activity, communicative and health saving components that are in relationships and are aimed at ensuring the integrity and continuity of the process of students' information competence forming in conditions of modern high school.The article also describes the problem of the teachers' functions' expansion involved in this process. The article can be recommended for use in modern practice of educational institutions, as well as in the system of teacher training.

Keywords: *information competence, structure and content, higher school students*

1. Introduction

1.1 The urgency of the problem

The dynamic development of the information society stipulates that the professional activities of modern young professional require continuous education, commitment to continuous improvement of his professional competence. In modern conditions, even in the period of training of future specialists several generations of hardware and software are changed, new information technologies are born, the content of Informatics as a science is changed and clarified. Therefore, during training, the student should not only form the subject knowledge and skills, but also to promote the development of those personal qualities that would enable in future to solve new problems (Sibgatova et al., 2015; Masalimova et al., 2014; Khairullina et al., 2015).

Therefore, among the general competencies which are necessary for professional activity of future specialists, in

addition to personal and interpersonal competencies, we identify information competencies under which cognitive abilities are understood, i.e. the perception and use of ideas and thoughts; methodological abilities-time management, decision making, strategy choice, and so on; information and communication skills, the ability to extract, analyze, and effectively use information.

1.2 Information competence, information culture, information literacy

The concept of "information competence" and "information culture" are basic in information and cultural approach. K. Tyner suggests definition of "information literacy" as "the ability to find, evaluate and effectively use information in personal and professional activities" (Tyner, 1998.). A. C. Khutorsky (2002), understands informational competence the following way: using real objects (TV, tape recorder, telephone, Fax, computer, printer, modem) and information technology (audio - video, e-mail, media, Internet) skills to search, analyze and select the necessary information, to organize, convert, keep and send it are formed (Khutorsky, 2002). This competence provides future teachers' activity skills in relation to the information contained in academic subjects and educational fields, as well as in the surrounding world.

Currently, the problem of students' information competence formation is becoming increasingly important from both science and practice. To date, a large number of technologies and teaching techniques based on efficient approaches to knowledge transferring to students, his cognitive abilities' development are developed and implemented. But does this mean that the presented technologiesare able to solve the problems posed by advanced professional education: the formation of a competitive specialist, not satisfied with ready-made recipes for every occasion of life, able to find new solutions by optimal ways? Analysis of contemporary interpretations of the term "information competence" (Trishina, 2005; Zaitseva, 2002; Piyavski, 2009 and others) showed that in modern conditions the quality personal characteristic is understood as a new literacy, which includes skills of active, independent information processing by man (Zaitseva, 2002; Trishina, 2005).

1.3 The content of the information competence

Information competence includes the following elements:

1. Theoretical knowledge, practical skills of information technology using (IT) in professional activities.
2. Creativity in information technology application to practical tasks' solution, as well as in information processing, storage and transmission organization.
3. Flexibility of thinking, the ability to self-education and professional development in the field of information technology.
4. Formed worldview and system of personal values and life priorities (Slastenina, 2007).

Modern competitive specialist in almost any sphere of professional activity uses information technology in various fields, namely: to search for the information required in his professional field of activity; for storage of the documentation required in professional practice; for the presentation in the information space, contributing to the competitiveness of modern specialists; for implementation linkages with other actors; for participation in grant activities.

Information competencies for competitive expert means:

- skills to work with different information sources (books, textbooks, reference books, atlases, maps, encyclopedias, directories, dictionaries, CD-ROMs, Internet);
- independent search, extraction, systematization, analysis and selection of necessary information for educational problems' solution, its organization, reform, preservation and transmission;
- orienteering in information flows, and the ability to highlight the most important and necessary information;
- the ability to consciously perceive the information disseminated through media channels;
- proficiency in the use of information devices and information technologies;
- knowledge of various computer graphic editors for the application of these technologies in the creation of advertising texts and images that will bring the right information to the recipient in the most accessible form (CorelDraw; PowerPointu so on) (Khutorsky, 2002).

It follows from the above said that currently needs in the formation of students' information competence of higher education in terms of undergraduate dictate that a modern University should be focused more on productive teaching methods aimed at the development of the creative potential of the future specialist.

Psychological science distinguishes between two main types of intellectual works: reproductive (reproducing) and productive (creative, search).Reproductive activity is done according the sample, by order, it is reproduction, or

identification of already known relations,it is the most economical way of acquiring knowledge, without which students, especially first year students, will not study. In the process of productive activitythe reproductive one is not excluded, but it becomes auxiliary. In the framework of productive activities the learned earlier algorithm allows to find new knowledgein non-standard situations, to build up new rules of action and individual learning algorithm. While the students look for ways of mental actions independently.

If the student in terms of bachelor degree who is going to work with public relations, based on his own experience in research activity independently "produces" knowledge in the learning process, and does not only receive them ready, he will tend to act similarly in his future careers. In the formation of information competence a conscious learning more clearly identification of characteristics of the basic concepts, the expansion of knowledge, the formation of different abilities and skills, ensuring continuity with other disciplines are taken place.

2. Literature Review

Analysis of research approaches to the content disclosure of the term "information competence" shows that this problem is being studied by many scientists (Bershadsky, 2006; Golovko, 2006; Bokareva, 2003; Zavialov, 2005; Zakharova, 2003; Nass, 2009; Kleynosova, 2009; Gulyakin, 2010; Zeer, 2000; Filatova, 2005; Ivonin, 1999; Karakozov, 2000; Bespalov, 2003 and .etc.), who believe that we should not consider information competence as a set of strictly defined quality characteristics because of different specialties varies it in the course of professional training and professional work according the content and volume of special knowledge.

Revealing the essence of the concept “information competence of students", A. A. Mukasheva (2009), includes an individual's ability to apply specialized knowledge and skills in the field of computer and information technologies to solve professional tasks, for professional self-development and self-improvement (Mukasheva, 2009). Accordingly, it is possible to define the following structural components of this competence: cognitive, activity, creative, axiological, the content of which is determined by the complexity of the professional functions of a specialist, increasing of his role in the development of production in the conditions of information society.

Additionally, there is need of differentiation of the educational process, the split of personal qualities. On this basis, Y. A. Plotonenko (2009), identifies the following structural and content components of information competency:

- cognitive-content component, characterized by students' holistic knowledge about the information environment, providing the experience of information activity and orientation in the environment, awareness of the objectives and their capabilities in the implementation of information activities, defining the system of specific practical skills of working with information, the optimal use of information systems and technologies, their development and support in multilateral professional activities, selection and accumulation of the necessary information about the possibilities of information technology in meeting the educational and cultural needs;
- socio-communicative component, which includes the principles and rules of behavior in information and communication systems in terms of human interaction with computer and information environment that involves students' abilities in a flexible and constructive dialogues makingas "person - person", "human – computer”, “human - computer - human" and understanding of ethical, moral, and aesthetic standards prevailing in these relationships;
- value-motivational component, which is a system that combines students’ position and setting, valuable attitude to the objects and phenomena of rapidly changing information environment, an adequate representation of the global information space, information interaction in it, the opportunities and challenges in human understanding; it is associated with students' knowledge about the value priority of human life, health, and spiritual development of the individual;role of information technology in the development of modern civilization; legal, ethical and moral standards of work in the information environment; information security of society and the individual, about the advantages and disadvantages, diagnosis and prognosis of society and humanlife informatization process (Plotonenko, 2009).

In many contemporary studies the students’ information competence formation is seen as a strategic factor in their preparation for future careers, providing the ability to navigate in conditions of a constant information volume increase used to solve professional problems and in lifelong learning. Besides, there are value-motivational, cognitive, technological, reflexive components of students’ information competence.

Accordingly, the structure of students’ information-communicative competence N.B. Strekalova (2009), defines as the aggregate of the following components, which can also be referred to specialists in public relations:

- information retrieval component, indicating the information seeking technologies possession in electronic

networks of different types and work principles possessionin hypertext systems, information placement technologies possession in the global network;
- information management component, showing the development of electronic control and management technology of material and human resources, implementation of electronic document management and use of legal-reference systems;
- communication component, reflecting the willingness to use information transmission technologies via electronic networks and non-verbal communication, principles of electronic mail;
- text and visual components, indicating the possession of technologies for the creation and processing of electronic texts of various styles, electronic presentations and hypertext;
- hardware-system component, reflecting the willingness to use hardware-technical base of information and communication technologies and knowledge of the basic principles of storing, collecting and displaying information (Strekalova, 2009).

3. Results and Discussions

3.1 The components of students' information competence formation

Taking into account the proposed points of view in psychological and pedagogical literature on the component composition of information competence formation, it is recommended to allocate motivationally-axiological, cognitive, activity, communicative and health-preserving components of information competence formation of future specialists in public relations, and to consider them from the perspective of client-oriented environment.

3.1.1 Motivational-value component

Motivational-value component of students' information competence formation includes motives, values, feelings and emotions caused by the interaction of the selected components and creating favorable learning and educating the client-oriented environment. The selection of this component facilitates consideration of the real interests and needs of not only students, but also future customers, their advertised services and products and increase their motivation to information activities through the creation of natural wishto communicate with the client, their value orientations and emotional-evaluative attitude to the learned content of education, as well as independence and activity, both in educational and in extra-curricular process.

3.1.2 The cognitive component

This componentprovides mastering the knowledge body about information activity, its peculiarities and regularities. This component works on the implementation of the content and information functions, contributes to the information functioning in the students' minds about the basic facts, concepts, revealing the essence of information competence. The content of the cognitive component includes information knowledge based on interdisciplinary, integration of the Humanities, Sciences and professional components, deep inner science of the unity of all disciplines, allowing to assess the customers' capabilities, needs and preferences;

3.1.3 Activity component

Activity component involves the ability to apply knowledge in information activities, namely the ability to use modern information technologies and networks for effective communication, including foreign students, skills of self-presentation in the information space, participation in grant activities focused on the needs and preferences of customers;

3.1.4 Communicative component

This component is characterized by the skill and ability of students to apply information knowledge and methods of cooperation in the information space.

3.1.5 Health saving component

Health saving component aims at preserving and strengthening the health of future specialists in the course of their professional activities related to information technology, which includes knowledge about irregularities in their health that may have an impact their future and their timely correction.

3.2 Functions of information competence of a higher school teacher

As functions of information competence of a teacher demonstrating actual client-customer relations, the following are presented:

- informational, requiring modernization of the content of teachers' training, orientation on information activities;
- epistemological (cognitive), namely, showing that the teacher in the process of information activities systematizes information knowledge about products, services and potential and actual clients in the process of information resources use in professional activity;
- communicational, manifested in the semantic component, which is expressed on paper and electronic media;
- constructive, involving the teachers' information activity planning and design on the material of the taught subject;
- integrative, namely showing, that the student's person is affected by many factors contributing to the manifestation of his individual properties which are adequate to the objectives of this educational process;
- organizational function, implemented on the basis of the teachers' skills to choose the optimal ways of information activities organizing;
- educational function, including professionally-active component – the work with information (knowledge of different sources, forms and methods of work with information, retrieval information systems knowledge, the skills of analysis, synthesis and generalization of information, the ability to present information, the ability to choose the optimal solution), as well as reflexive and communicative component - the creative application of information (the ability to self-control, communication and joint activities, professional information correction, awareness and critical analysis of information activities, creative projects making).

In his research S. Mochenov (2007), notes that the promotion of information technologies in the University requires hard work on the implementation of various projects and organizational procedures related to the integration of information technology with the curricula, computer equipment installing, acquisition and development of special software training, teaching and engineering personnel training, the development of telecommunication systems.

From the above it follows that the Informatization of the University means a new approach to the education quality provision problem, efficiency of scientific activity, requiring changes in the nature of the educational process aimed at developing greater independence of students in educational curricula mastering, disclosure of their capacity in the process of skills acquiring to work with modern software and information resources, including a focus on taking into account the conditions of the client-customer interaction.

4. Conclusion

Thus, in the course of the study, we can conclude that the above-mentioned components of high school students' information competence formation (motivationally-axiological, cognitive, activity, communication, health-preserving) are interrelated, and the absence of one of them destroy the integrity and continuity of the process.However, not all students have the same opportunities that allow them to be genuine entity of information activity. The need for specialists training with information competence puts forward new requirements to modern teacher, whose tasks are expanding and include informational, cognitive, communicative, constructive,integrative, organizational and development functions.

On the basis of research-based findings, we can identify the following organizational-pedagogical conditions of effective students' information competence formation:organization of information-educational environment by enriching the information resources; diagnosis and subsequent monitoring of educational needs, motivations and level of students' knowledge; inclusion of students to educational activities using remote sensing technology; stimulating of independent learning and cognitive activity of students on the basis of information and communication technologies using.

The study does not reveal the fullness of the possibilities of students' information competence forming, and is one of the variants to problem solutions. In the course of work separate components of its formation were defined, which can be used in further pedagogical research on the development of students' information competence. The article can be recommended for use in modern practice of educational institutions, as well as in the system of teachers' training.

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The Social Infrastructure Services in the Context of Economic Growth Factors

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Abstract

In today's economy the social infrastructure sectors from "the social overhead capital" or under the process of social reproduction have turned into an independent economic activity that occupies much larger share of the gross national product and gross national income compared to the "tangible" production phase. The social overhead today dominates both in GDP and employment volume, profit growth rates, capital investments volume, the level of innovation activity. The article analyzes the modern structure of the social infrastructure, gives rationale for the estimation methods of the social infrastructure parameters, examines the current classification of the social infrastructure factors affecting the economic growth of the region, identifies the new trends and patterns, analyzes the reasons for the decline in the investments absolute volume in the sectors of social infrastructure and identifies the factors stimulating and retarding the development of social overhead. This article is intended for the researchers, lecturers and students studying service economy, the methods of research in the social infrastructure sectors within the disciplines "Service economy", "Social infrastructure services ", as well as for the heads of the social infrastructure bodies, specialists of the regional regulatory bodies dealing with development of social overhead.

Keywords: *general conditions of social reproduction, factors of social overhead development, economic growth, the classification of the social infrastructure sectors, development criteria.*

1. Introduction

1.1 The relevance of the problem

In modern conditions of national economy modernization the importance of various factors affecting the economic

parameters of its growth is significantly increasing, the social infrastructure is one of the most important. The sectors of social infrastructure today influence both the gross domestic product and the number of employed population, the rates of profit growth, the volume of capital investments, the level of innovation activity (Kokurin & Nazin, 2011). However, the influence of social infrastructure on the enterprises, industries and regional economy growth parameters as a whole is still understudied. There are no official methods of assessing the impact of the social overhead on the dynamics of economic growth (Buzmakova, 2010). All these demands designing and implementing the measures of an institutional nature related to creating the development concept of national, regional and municipal social infrastructure, developing the state institutions of control and monitoring of the social infrastructure, developing the tools of public-private partnerships, drafting special laws regulating the activities of social overhead as a form of economic activity, implementing the measures of state support for small business in the social overhead (Pchelintseva, 2004).

The development and implementation of the social infrastructure institutionalization will naturally entail economic reforms in this area, and, primarily, provide competition between the sectors of social infrastructure, draft the measures of increasing competitive advantages of the social infrastructure objects, create the investment attractive climate in the social overhead, develop and implement the tools for social overhead capitalization growth (Smolyakov, Medvedeva, 2008).

The problems of identifying the trends and the character of social infrastructure services influence real economy growth parameters and become the issues of particular importance both for the real sector enterprises and the social overhead enterprises (Durtseva, 1985).

2. Methodological Framework

2.1 The objectives of the research.

The objective of the study is a theoretical underpinning of the relationsships between the social infrastructure and economic growth parameters, determination of the extent and indicators that reflect the influence of the social overhead on the growth parameters of the national economy, the analysis of the main components of the social infrastructure, their role and importance in the process of the national economy modernization, the development of the criteria for the social infrastructure establishment and development, its territorial arrangement, structural framework, the level of intraindustry priority at every particular stage of economic development.

2.2 The theoretical and methodological framework

The theoretical and methodological foundation of the study has become the studies of Russian and foreign scientists in the area of developing the social overhead, the assessment of its resource potential; the research on the management specificity of the social infrastructure sectors at the regional level; industry publications, scientific articles in the refereed journals.

The research methods include the dialectical and system analysis, the methods of abstraction and comparison, the method of statistical observations, grouping of the economic indicators and expert estimates.

3. Results

3.1 The theoretical approaches to the identification of the relations between the social infrastructure and economic growth parameters

Analyzing the theoretic approaches to the evaluation of the relationships between the social infrastructure and economic growth parameters it seems appropriate to apply to the rich theoretical heritage left by Karl Marx in the studies concerning the place and role of social infrastructure in public reproduction. In the theory of general conditions of social reproduction he peculiarly pointed out the production as a process of direct combination of personal and real factors, which has resulted in the cost containing a surplus value and the process of providing the conditions for this combination where the surplus value is only consumed. These general conditions ensure the continuity of transition from " one phase of the process to another " whereas it does not determine the inner content of the production process, at the same time they affect its performance through accelerating the capital goods turnover, through the workforce quality and they also are the result of human labor as something special, different from the production of capital goods (Marx & Engels, t.46).

In other words, K. Marx considers these general conditions of production as the material conditions of

infrastructure activities that are included into infrastructure as into a sector of social reproduction. Therefore, there is the activity aimed at "renewing" the universal instruments of labor by means of water and heat supply, sewerage, electricity, lighting, maintenance, etc. The infrastructure does not create universal instruments of labor, but ensures their regular functioning as the general conditions of social reproduction. Any field of activity having appeared in the course of social division of labor, creating a beneficial effect for other areas does it for itself.

However, Marx wrote: "The capital itself - assuming it is available in the needed amount - will build the roads only if the construction of roads will become a necessity for manufacturers, especially for the productive capital itself; will become for the capital a condition of profit "(Marx, Engels, t.20). In other words, the process of creating general conditions for the social production process acts as a process of creating general conditions for profit as a parameter of economic growth. This statement can be fully attributed to the social infrastructure that promotes economic growth and its development depends on the economic growth as the main condition of personal development.

Thus, becoming a common condition for economic growth the social infrastructure under complete market-related production is assigned to the status of state property. This regularity has been identified by Engels, who, considering the process of capitalist socialization wrote that "every common interest has immediately struggled away from society, has been opposed to it as a supreme, universal interest, has left the sphere of amateur activity of the society members and has become the object of government activity - starting from a bridge, school building and public property of any rural community and ending with the railways, national property and state universities of France "(Marx & Engels, t.24).

However, at the same time identifying the infrastructure as the general condition of the social reproduction process, Marx could not then assess its role in profits, so he focused only on the desirability of determining the infrastructure sectors in the system of social reproduction. However, he did not include the results of the social infrastructure activity that do not constitute, in his view, the real benefits into the category of "total product and its cost " . That is why, by reference to the theory of Karl Marx, it was impossible to make a conclusion about the dependence of the material production from the results of social overhead functioning and to measure them.

Moreover, as noted by some researchers in order to determine which particular activity is a part of the social infrastructure it is necessary to consider it as a dialectical unity of the processes that provide general conditions of consumption of a personal production factor (functional aspect related to "production in general") and development of the industrial relations in the process of functioning and development of this economic system (Durtseva, 1985).

Thus, the Marx's theory of surplus value does not exclude the availability of services providing the conditions of the social reproduction process, which are the integral part of the necessary product, included in the value of the gross national product, but they do not appear in the tangible composition of the latter, but are manifested in the form of social infrastructure services.

However, the modern economy is significantly different from the economy of the Karl Marx's study period and, above all, it is different with the structural relations of social reproduction phases, when unlike the "Marx's" economy where the tangible production phase dominated, in today's economy it falls to the smallest share. The sectors of social infrastructure form the "social overhead capital " or the conditions of social reproduction process have turned into an independent economic activity, which occupies a much larger share of gross national product and gross national income compared to the "tangible" phase of production. The social overhead today dominates both in GDP and in the number of employees, the employment volume, the rates of profit growth, the volume of capital investments, the level of innovation activity.

The studies performed by national economists indicate that long-term growth of national economy naturally requires large investments into social infrastructure. This is evidenced with the experience of such rapidly developing countries as China, which now invests in the social overhead up to 8% of GDP, India - 4%, while the domestic investment in this area does not exceed 1.5%, and continues to decline (Kokurin & Nazin, 2011).

As shown in Table 1, the data can clearly trace the downward trend in the absolute volume of investment into the basic social infrastructure sectors. So, for the period from 1990 to 2011,the dynamics of changes in launching the objects of social infrastructure in Russia has decreased significantly. In 1990 the number of newly-started schools was 514.6 thous. places, in 2011 - only 66.4 thous. of places that is almost 8 times less. In 1990 the number of preschool institutions accounted for 225.1 thous.. people, in 2011 - only for 23.9 thous. places that is also almost 10 times less. Even more depressing dynamics is traced with entering professional training institutions, the annual input of which during the same period fell by almost 13 times.

A similar pattern can be traced in the annual commissioning of engineering of social infrastructure, including water supply, sewerage and heating networks.

Table 1. The Dynamics of implementation of the social infrastructure objects in Russia in the period 1990 -2011

	1990	1995	2000	2005	2008	2010	2011
The water system, thous. km	7,5	2,6	1,4	1,5	2,0	2,0	2,1
The sewerage, thous.km	0,9	0,5	0,2	0,1	0,3	0,1	0,2
Heating network thous.km	1,5	0,5	0,2	0,2	0,3	0,2	0,2
School building, thous.places	514,6	218,1	117,3	73,8	68,2	65,1	66,4
Preschool institution, thos.places	225,1	28,9	7,4	5,2	28,4	25,4	23,9
Vocational education, thos.places	14,4	3,5	0,6	0,3	1,3	1,4	1,7

The Sources: compiled by the author according to the official statistics.

Certainly, the global financial crisis has attracted the attention of economists all over the world to the social infrastructure role in a sustainable and long-term economic growth which undoubtedly proves the high efficiency of investment in social infrastructure as a dominant factor of economic growth. This can be proved with redistribution of the employment parameters of the economically active population from "bankrupt" sectores to the sector of social infrastructure, such as communications, education, health care and related allied industries to ensure their development such as production of medical equipment and its software, actively growing sector of private companies providing a wide range of housing and communal services.

3.2 The classification of the social infrastructure sectors and estimation methods of its development.

It is obvious that close classification of the social and industrial infrastructure is unnecessary. In today's economy it is difficult to clearly separate these sectors. For example, it is impossible today to separate health care from medical industry, information technology, software and medical equipment market.

Therefore, it seems appropriate and reasonable to support the most reasoned view expressed by D.I.Kokurin and K.N.Nazin published in the study "The development and implementation of the infrastructure potential of the Russian economy" (Kokurin, Nazin, 2011). On the basis of the arguments therein it seems suitable to include into the scope of social infrastructure the following sectors: production and distribution of electricity, gas and water; transportation (passenger) and communication; education; health care; social services.

This categorization is reasonable from a statistical point of view either, since it allows to use adequate and statistically measurable economic parameters of economic activities which are at the same time the sectors of social infrastructure.

The today's statistical methods allow to distinguish the two main methods of assessment (measurement) of the social infrastructure parameters, which officially are physical and cost methods. For obvious reasons, the analysis of the social infrastructure parameters is performed with the help of cost method as the only method to compare the processes and objects measured with a single tool and compared parameters. The range of physical indicators application is rather narrow and does not allow for analytical comparison of different sectors of social infrastructure and other sectors of the economy (Smolyakov, Medvedeva, 2008).

3.3 The influence of social infrastructure on the long-term economic growth.

Analyzing the studies in the field of social infrastructure enables us to formulate the main factors of social infrastructure affecting the long-term economic growth:

- the direct stimulating effect on the manufacturing sector of the economy;
- the direct retarding effect on the manufacturing sector of the economy;
- stimulating synergy of various sectors of the manufacturing sector of the economy;
- encouraging the multiplier effect of investment demand;
- an instrument of economic policy to stimulate and constrain the development of both the social infrastructure sectors and related industries as a whole (Balatsky, 2005).

Thus, the adequate development of energy networks, public transportation and communications, health and education, research and development can have a direct stimulating effect on the manufacturing sector of the economy.

In turn, the lack of development of system utilities, housing and public services, passenger transportation system,

vocational training institutions can have a significant retarding effect on the productive sector of the economy (Smith, 2007).

In this case, the adequate development of the above-mentioned sectors of social infrastructure services, their timely modernization can have a significant impact on reducing production costs in industry, while their underdevelopment or absence could jeopardize the commercially viable functioning of the enterprises in general. These factors, for example, have encouraged the establishment of health and education departments within the manufacturing sectors as a reaction to the lack of appropriate public services in these sectors of social infrastructure.

The development of modern system of periodic health examination in health care is primarily aimed at identifying oncology diseases at an early stage, according to experts, it has directly increased the labor efficiency in such industries as coalmining, construction materials producing industry, the mining industry at average of 10% (Kiselev, red, Nugumanova, 2013).

Nowadays, it is obvious that the possibilities of modern medicine, education can significantly raise the level of human capital accumulation, which in turn stimulates synergies of various sectors of the manufacturing sector of the economy. The construction of high-tech medical centers is marked by significant investments in construction itself, construction materials producing industry, capital improvement, thereby causing the effect of "multiplier" in such industries as petrochemicals, nanotechnology, electronics, pharmaceuticals, information technology, telecommunications, and many others (Kiselev & Daminov 2010).

And of course, the most important factor affecting the long-term economic growth is social infrastructure as an instrument of economic policy to stimulate and limit the development of both the sectors of the social infrastructure and the related sectors of the economy as a whole. Thus, developing a system of national research universities the state thereby creates a favorable environment for the development of small innovative university entrepreneurship as one of the priorities of economic policy in general. A process of gradual reduction of federal government's participation in some sectors of regional social infrastructure, such as road passenger transport significantly stimulates the entrepreneurs to enter this business solving thereby two problems: reducing the federal budget expenditures and encouraging private business activity in the regions and cities of the country.

The relationships between the economic growth and development parameters of the social infrastructure have mutual, not unilateral but cross character. It is clear that the acceleration of economic growth will give rise to activation processes of certain sectors of social infrastructure, stimulate the emergence of new types of services that measure up today's phase and nature of economic growth. For example, activation of the innovation processes in various sectors of the economy, the construction of industrial parks and business incubators, initiated by the Russian Government necessitated the development of special education programs on innovation management and their implementation into the training courses of major national research universities.

3.4 The approaches to determine permissible limits of the government and business participation in social infrastructure development

The national policy in the sphere of social overhead according to some experts (Buzmakova, 2010) should take into account the following factors:

- the permissible and appropriate boundaries and limits of public and private sectors in social overhead;
- the choice of the most effective forms of financing the development projects of social overhead;
- the rational territorial allocation of social infrastructure objects ;
- the determination of the efficiency level and the need for new construction or reconstruction of social overhead.

Thus, the permissible limits of state and private business participation in functioning of the social infrastructure are widely studied by national economists. Most of them have achieved the agreement of opinion concerning the sectors of "natural monopoly" that should belong to or be controlled by the state. These industries traditionally include public utilities, electricity, sewerage and water supply, where the participation of private enterprise objectively is inappropriate for the reasons of high social importance of social infrastructure sectors as well as their unprofitability (Pakulina, 2011).

On the other hand, the recent years experience convincingly shows that private enterprise is not always effective and socially necessary in health and education. The statistics of recent years shows the plateau of private medical and educational institutions. The Russian specificity inherited from the Soviet time is more loyal, as practice shows, to public health and education system. The national health care experience in this respect is the most illustrative: the health facilities are owned by the federal, regional (i.e. state) and municipal authorities, the medical assistance is paid for by non-government (i.e. private) health insurance companies, but the fund raising from working and non-working population

is performed by non-budgetary funds the legal status of which is still not clearly defined. As a result, we have low motivation among medical institutions and physicians to reduce the population morbidity because the more people will get sick - that means seeking medical advice - the more the latter will raise funds for each patient. That is why the centralization of property and budget sources of health care in state hands will reduce health care costs, the share of which in Russia has reached almost 40% of all social overhead expenditures (Kiselev, Daminov, 2010).

However, the share of htealth care costs in Russia is far behind those of developed countries despite the huge national debt of the US and Europe's economy crisis. For example, in 2011 the share of total national health care costs was 4.2% of GDP which is 3.3 times less than in the US (14% of GDP), 2.1 times less than in the European Union countries (about 9%) and 1.4 times less than in the countries of Eastern Europe and the Baltics. According to independent experts of the World Health Organization by reference to the purchasing-power parity of the US dollar, if in 1991 the total health expenditure per capita in Russia was $ 350, in 2000 it made $ 240, in 2011 - $ 190 (Saltman, Figueras, 2000).

At the same time, upon the national average now the 40% of the medical institutions are located in the specialized premises, 12% of the buildings are dilapidated, and the average area per bed is 3.7-4.3 sq. meters while the standard is 7 sq. m.

All this indicates an acute investment demand in the fields of the social overhead. Thus, according to experts, China since the 2000s has been investing in social infrastructure 7.8% of GDP annually, India - 3-4%, the investment in the Russian social infrastructure projects do not exceed 1.5% being on a level with Latin America. But it should be noted that the investments in development projects and modernization of the social infrastructure in practice have proved to be highly effective and directly impact on the process of accelerating the economic growth. It is estimated that every billion dollars invested in social infrastructure creates 15 thousand jobs and about 30 thousand additional jobs in industries related to social overhead, and the annual volume of investment in the sector of social infrastructure of Russia should be at least 15 -18,000,000,000. dollars (Shuster, 2008).

3.5 The criteria of social infrastructure formation and development, its territorial organization, structural framework, the level of intraindustry priority at any stage of economic development.

While undertaking the study in assessing the impact of the social overhead services on the economic growth parameters in the region or country as a whole, it must be remembered that the social infrastructure, in turn, is a component of all national or regional economic complex, part of its functional and territorial structures. So, while the functional structure reflects the scope and the ratio of a set of objects that perform specific works and services, the territorial structure is represented by the various forms of spatial concentration of social and engineering sectors of social infrastructure. That is why the research in the field of regional economy is essential for complex and adequate assessment of the social infrastructure efficiency.

Therefore, the experts in the field of regional economy consider the social infrastructure as a social overhead which is interpreted in terms of a macroeconomic model of the entire economic complex. The study of the objects complex and social overhead is interconnected as at this level the relations of the sectors are reflected in the social infrastructure relations in a particular territorial system. The sectors solve the fundamental problems of social infrastructure development including, particularly, the intensification of the socio-economic efficiency of service delivery without which it is impossible to offer an optimal strategy for the development of localized objects in a certain area (Kistanov, 2002).

Moreover, there is a territorial community in the social overhead distribution and population housing. The settlement system directly determines the territorial arrangement of social infrastructure, which is localized in the settlements or becomes a means of covering distances. Therefore, as the territorial subsystem of the economic complex closely related to the settlement system the social infrastructure is a hierarchical form including:

- the intrastate or magistral (a unitary economic complex) level;
- the regional (regional economic complexes - of economic region, economic zone, area, of the administrative district, territorial production complex, industrial hub and so on.) level;
- the local (individual settlements of rural and urban-type) level (Voronin, 2003).

The principles of social infrastructure allocation are based on the core principles of territorial production complexes which provide such an important factor of production process as the relevant human resources and regulation of the migration processes.

The social overhead specificity provides also its complex and affordable availability not only within the territorial production complexes but also the cities and towns.

All this together creates the concept of the social infrastructure efficiency which is determined by the parameters of society development as a whole, workforce and individuals that indirectly contribute to the economic growth. Therefore, an efficient social infrastructure focused on the economic growth in theory and in practice should definitely respond to the improvement and growth of human capital, only when these two unidirectional vectors of development united we may discuss the influence of social infrastructure on the growth parameters of one or another territorial subdivision.

In this regard it should be noted that the economic growth and development of social infrastructure is not always unidirectional phenomenon of national and world economy. We happened to witness the implementation of the economic growth projects to the disadvantage of individual sectors such as education, health care, utilities. At the same time, social development, the construction of social infrastructure, budget expenditures on social services hamper the economy development and its innovative activity, reduce investment in promising economic projects. This facet, or rather its perception and understanding, its evaluation is the efficiency zenith of the state social and economic policy, because the wrong priorities may be detrimental to both areas of socio-economic growth.

Therefore, the establishment and development of the social infrastructure, its territorial organization, structural framework, the level of intraindustry priority at each stage of economic development should meet the following criteria:

- the balance of the social infrastructure sectors with other, primarily, the prioritized (budget-revenue generating) sectors of regional economic complex;
- maintaining the territorial and industry-specific proportions between the sectors of social infrastructure;
- ensuring the balanced parameters of the social overhead development with the number and demographic structure of the resident population in the region (Sogacheva, 2009).

Providing these parameters of formation and development of the social overhead should be arranged with a strategy for its development and modernization, which should be one of the principal legislative and regulatory documents that provide the priority level and structure in the development of various sectors of the social infrastructure. Therefore, when designing a development strategy for each region, one of the most important issues will become setting the priorities, finding the funding sources and choosing an optimal model for the region. The quality and complexity of the industry development strategy of social infrastructure will largely determine the parameters of economic growth in the region and the life quality.

4. Discussion

The analysis of the problems of formation and development of the social infrastructure sectors and their role in economic growth has been carried out by Balatsky E. (2005), Durtseva I. (1985), Kokurina D., Nazina K. (2011), Kiseleva S., Krasnova A., Nugumanova G. (2013), Saltman R., Figueras J. (2000), Pchelintseva O. (2004), Sogacheva O. (2009), Shuster S. (2008) and others.

The study of the factors affecting the rapid development of industrial infrastructure sectors in modernization of the national economy is carried out by Buzmakova M. (2010), Smolyakova Yu, Medvedeva I. (2008) and others.

The problems of the relationships between the social overhead and the region's economy are discussed in the works of A.Voronin (2003), Ivanova, A. (2007), Kistanova V. (2002), Pikulina I. (2011) and others.

However, a number of issues relating to the criteria of formation and development of the social infrastructure, its territorial organization, structural framework, the level of intraindustry priority at each stage of economic development remain understudied.

5. Conclusion

Consequently, the analysis of the social overhead establishment and development in the context of economic growth factors allows to make some conclusions. The problems of modernization of the national economy, the search for efficient factors of its growth naturally stimulate the research in the field of social infrastructure as an essential economic growth condition.

The results of the performed research have allowed to theoretically justify the relationships between economic growth and development parameters of the social infrastructure from the point of economic development, to give reasons for the classification of the social infrastructure sectors and the estimation methods of its development parameters, to identify the factors of the social overhead influence on the long-term economic growth, to identify the approaches to determining the permissible limits of state and business participation in the development of the social infrastructure as well as the criteria for the formation and development of the social infrastructure, its territorial arrangement, structural framework, the level of intraindustry priority at every stage of economic development.

6. Recommendations

The obtained results allow to justify, classify and structure the main areas of applying the social overhead potential as a factor of regions' economic growth as well as an assessment of its impact on the sectoral structure of national economy as a whole and its individual regions. In addition, the received results may be useful to the general government for improving national social adjustment policy in formation and development of the social infrastructure in Russia and its regions.

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