the teaching of Arts in the university with the integral policy of patriotic education in the university provided, along with the creative approach of the academic stuff, reasonable initiative, directed at the motivation of academic and research activity of students.

References

1. State Programme "Patriotic education of the citizens of the Russian Federation for 2001–2005" [Net resource] http// www.rg.ru/official/doc/postan_rf/122_1.shtm.

2. The concept of patriotic education of the citizens of the Russian Federation [Net resource]. http//www.fadm.gov.ru/projects/280/525/MAIN.

3. State programme "Patriotic education of the citizens of the Russian Federation for 2001–2005" [Net resource] http// www.rg.ru/official/doc/postan_rf/122_1.shtm.

The work is submitted to the International Scientific Conference "Fundamental and applied problems in medicine and biology", UAE (Dubai), October, 16–23, 2014, came to the editorial office on 15.07.2014.

DESIGN OF MULTI-DIMENSIONAL MATHEMATICAL TRAINING

[1]Dorofeev A.V., [2]Piadina J.V.

[1]Sterlitamak Branch the Bashkir State University, Sterlitamak, e-mail: an-dor@rambler.ru;
[2]The Western Galilee College, Israel, e-mail: jannap@wgalil.ac.il

The article is dedicated to the substantiation of the systemizing role of the multi dimensionality principle in the design of competence oriented mathematical training in high school. Several modules can be distinguished: theoretical, humanitarian, methodological, application and methodical, on the basis of which cognitive, social-humanitarian, operational, research and professional orientations of mathematical preparation. Multi dimensionality of mathematical training is connected with formation of competence, which is a necessary condition of student's professional development.

One of the major landmarks of social progress in the dynamically unfolding innovative processes in high school is students' readiness for changes, participation in them and accepting the new as a value. The great importance in this case acquires training of a specialist, who owns deep competence in the subject, professional culture and organizing skills. That is why the key aim in modern social and cultural situation is to become a creative personality, which has a wide range of humanistic values.

A future specialist is required to have the ability of thinking hypotheses and assumptions and perceiving the information as practical value for a concrete result. Abilities in the sphere of professional activities should be complemented by social and cognitive abilities, including a student's readiness for creative search and lifelong learning. Knowledge and skills together with behavioral and motivational aspect are components of multi-dimensional cluster structure of competences, according to which professional competence, so necessary for the effective work of a graduate, contain clusters of cognitive and functional competences. Personal competences disintegrate into social and high level competences, and the latter serve as a basis for all other competences acquisition [1, p. 15−18]. Professional education should not aim so much on the formation of a final set of previously known competences, but on the formation of high level competences, which allow a graduate to form abilities to diagnose their level of personal and professional competences.

There are some qualities in competences that can be characterized by such notions as "intersubject", "interdisciplinarity", and "multi dimensionality". Relatively, the process of formation of competencies should be designed on the principle of multi-dimensionality, which implies commensurate individual relationships between the components and changes of pedagogical system for education to be focused on the formation of student abilities to self-diagnose their level of professional development.

The category of "multi dimensionality" and its methodological aspects are developed in philosophy and informatics. Multidimensionality as a characteristic of multiplicity states measurement is presented in the work [2]. Pedagogy that has accumulated considerable experience in the study of educational systems from the perspective of the multidimensionality is not an exception. V.E. Steinberg is developing the theory of multidimensional teaching tools [3]. A.A. Ostapenko bases multidimensional modeling pedagogical reality on matrix structures, including the target, process, system-substantive, instrumental and evaluative invariants [4].

Appealing to the category multidimensionality in philosophical and psycho-pedagogical research shows the need for science to reflect reality by the most adequate and volume characteristics – compared with such characteristic of reflection as "systemic". It is more capacious in relation to close notions of "versatility", "multi-level" and "multi-direction". The context of the category of "multi-direction" shows the quality of "release", while the "multidimensionality" – synthesis of complementary parts, which take the system to a new quality. This is not a mechanical connection of parts, but the selection of the set of characteristics that allow to "measure" state, change and development of the entire system. Multi-level and versatility are close in context to release any levels and facets inside the system. This division implies a certain classification of the system (eg. on the basis of "general-special-individual"), which is also not the same as the concept of multidimensionality.

The principle of "multidimensionality" in the design of mathematical training is associated with the need to focus on its transformative, innovative and predictive activities. That means you need to consider how diverse ways of codification

of theoretical knowledge and the transformation of the educational information in a form suitable for learning by students with different cognitive abilities, and the transformation of teaching methods in intellectual technology of interacting agents – a teacher and a student. Multidimensionality is manifested in the allocation of cognitive operational-activity, social, humanitarian, professional research directions. It is important to rely on both a generalized model of professional development of the student, and the unique identity of the person with certain cognitive abilities. From these positions the following is relevant:

● justification of modular organization implementing cognitive, social humanitarian, research, operational and professional focus on education;

● defining of the functioning of professional training for the formation of high level competences of a student;

● building professionally-oriented technologies aimed at:

1) student learning being able to synthesize subject-realizable solutions, content-technological subject-productive tasks in a simulated and real professional activity;

2) requirement of providing meaningful and motivational impact of learning and cognitive activity in the process of creative solutions of professionally-oriented tasks;

3) developing a criteria for readiness for professional activity and, therefore, appropriate diagnostic methods.

Competence-based approach allows us to consider the content of mathematical training in terms of the result of such integrated result of professional education as high level competences. We cannot, however, consider high level competences as a kind of superstructure above the typical knowledge and skills, which are expressed mostly by intuition, perspicacity and common sense. Multidimensional structure of competences points to three aspects that ultimately affect the formation of high level competences of a future expert: theoretical knowledge, situational behavior and professional behavior style.

Among theoretical knowledge the following is distinguished: declarative (eg. knowledge of facts, concepts and rules); procedural (for example, knowledge about the functioning of the application and functioning of teaching and learning, learning the key to the search for knowledge). Professional behavior of a student is based on their theoretical knowledge. Knowledge quality criteria here are integrative bonds and systematization of knowledge about the position of their usage in the future professional career. Consequently, theoretical knowledge determines an adequate understanding of the essence of student's learning and the process of professional self-development.

But only theoretical knowledge is not enough for the educational process, as a student need to make competent decisions in a variety of professional situations. Numerous complex specific learning situations can not be studied during training in full, so a student must possess situational behavior models, eg. behavioral strategies. This approach involves giving students the opportunity to "try on" the role of an expert for the manifestation of his personal qualities (eg., communication skills, empathy, tolerance, openness), influencing the formation of high level competences, which definitely determine the style of professional behavior.

Cognitive, functional, social competence and professional personality qualities, the most important in the professional development, are integrated in high level competences (eg., communication, creativity, the ability to continuous self-development, social and professional responsibility). Designing multidimensional mathematical training is carried out in theoretical, humanitarian, methodological, and methodical application modules:

Theoretical module (implements cognitive orientation) is focused on the formation of concepts, methods of mathematics and characterizes sufficient level of use of the device in the organization of learning and research student's activity.

Humanitarian module (implements social and humanitarian orientation) is focused on the development of culture and mathematical ideas about the role of mathematics in science knowledge (emphasis in the content of the humanitarian aspects of the discipline, ensuring mutual transitions semiotic-symbolic systems, creating situations of "intellectual difficulties", the impulse to creative activity and communication activities, as well as promoting criticality, initiative and reflection).

Methodology module (implements research orientation) is focused on the development of student's mathematical modeling, deductive and inductive methods of reasoning, verification methods in science.

Application module (implements the operational orientation) is focused on providing the motivation in the work with professionally-oriented tasks, the use of model-shaped illustrations as schemes of theoretical knowledge, methodological specification of the method of modeling and synthesis of the research function of the new theoretical knowledge to develop students' practical skills.

Methodical module (implements professional orientation) is focused on theoretical and methodological simulation training activities required for the optimal combination of the objectives of mathematical training requirements of students' professional education.

Each module is focused on the formation of competences such as information and methodological, social interaction, self-organization and self-management, systemic and independent cognitive activity. In the monograph [5] there is a competence model of mathematical training of students of pedagogical specialities. It presents technological

support of multidimensional mathematical training, which includes:

a) educational activities, contributing to the formation of professional competencies;

b) designing socially significant results of this exploration activity;

c) identification of attitudes results for the student and society.

Conditions necessary for the formation of student's abilities for independent cognitive activity mastering basic knowledge and skills sufficient for effective use in a future profession, are:

1) modernization of methodical teaching systems based on the competence approach;

2) ensuring inter-linkages of formal logical and intuitive components of learning activities.

We will take a closer look at the interactions of formal logic and intuitive components of the activity.

Formal, logical component is reduced to a set of objects to classify skills and deductive reasoning, counterexample to disprove a general statement, formulate questions, conduct action by the algorithm and make this algorithm, and look for patterns to get the consequencies. While intuitive visual component involves guessing patterns in numerical material and geometric drawings, expressing hypotheses and holding reasoning by analogy and induction, building generalizations and instantiations.

Conclusion. Implementation of cognitive, social, humanitarian, operational, research and professional orientation education involves enriching personal experience of the student in the areas of:

– intellectual and cognitive search, if converted quest for knowledge, endowed with personal meaning;

– dialogic communicative activities, if any leads to the formation of their own position in life testing;

– emotional and personal manifestations, if there is a need to develop and experience different aspects of the value of action relations.

Thus, the multi-dimensionality of mathematical training in the integration of methodological knowledge and generalized methods of activity focused on the formation of a student's ability to self-education professional self-development

References

1. Zvonnikov V.I, Chelishkova M.B. Quality control of study for certification: the competence approach. – M.: Logos, 2009. – 272 p.

2. Nurullin P.A. Metaphysics of virtuality. – Kazan: KGTU, 2009. – 525 p.

3. Steinberg V.E. Multidimensional didactic tools: theory, methodology, practice. – M.: Narodnoe obrazovanie, 2007. – 384 p.

4. Ostapenko A.A. Multidimensional modeling educational reality: theory and technology. – M.: Narodnoe obrazovanie, 2007. – 384 p.

5. Dorofeev A.V. Competence model of mathematical preparation of future teachers: monograph. – M.: Flinta, Nauka, 2011. – 240 p.

The work is submitted to the International Scientific Conference "Actual problems of education", Athens (Greece), October, 15–24, 2014, came to the editorial office on 26.06.2014.

ORGANIZATION OF ECOLOGICAL ACTIVITY OF JUNIOR SCHOOL CHILDREN

Glazyrina N.L.

SI "Gymnasium № 2", Rudny,
e-mail: PashevitchNatali@mail.ru

The article describes the importance of using different types of ecological activity in the formation of ecological culture of JUNIOR SCHOOL CHILDREN. In this direction we tudied the experience of other authors. The publication acquaints readers with such activities as: ecological actions, ecological pathway, excursions, ecological games, role plays, field workshops, sociological studies, ecological experiments.

The organization of ecological activity of junior schoolchildren often causes serious difficulties for teachers. Unlike adults, senior pupils and even teenagers, junior schoolchildren look at the world as through a magnifying glass, which not only enlarges the natural objects, but also animates and humanizes them. That is why it is important to take care of the organization of activity even not so significant for the environment, but it has a huge impact on the development of ecological culture of the child [2, p. 21–22].

It was studied methodical development programs of A.A. Pleshakov, I.A. Kudinov, G.V. Bukowski, M.E. Bukovsky, N.F. Vinogradov, G.G. Ivchenkov, I.V. Potapov, N.S. Dezhnikovoy, L.Y. Ivanov, E.M. Klemyashova, L.M. Klara, A.P. Molodov, V.A. Samkov, V.M. Suvorov, N.V. Lobodin, Y.N. Alexandrov, N.D. Laskin, N.V. Nikolaev, S.V. Mashkov, I.G. Norenko and others. In their studies the authors used the following forms: excursions and activities, studies and projects, practical and laboratory work, observations and walks, distance travel and tours, competitions and children's parties, work in pairs and groups, ecological quizzes and KVNs (the club of inventive gays – CIG), conversations and exhibitions, presentations (using computer technologies) and ecological operations, ecological pathway, an hour of questions and answers, ecological courts, etc.

The analysis of researches allowed to group conditionally activity forms as follows:

– Ecological-oriented: ecological and psychological trainings, festivals, discussions, naturalistic activities, environmental, business, simulation games, thematic shifts in the CHC (Children's Health Camp);

– Environmental: community work days, ecological actions, children's ecological movement, actions on environment protection, tree planting;

– Design and research: ecological workshops, competitions, creative collective works (CCW), summer ecological workshop, the establishment of environmental projects (Urban ecology, recycling, the projects of ecologically clean house), and field of environmental practice;