

tween attendance index and progress assessment index in 2007–2008 decreased average by 17,7%.

5. Developed innovative methodology of fitness group students physical education contributes to broadening of theoretical knowledge and practical skills. During the survey the number of answers «I don't know» was by 61,5% less than it had been before. The number of students who found difficulty in replying the question about influence of physical education on people's health decreased average by 69,3%.

6. Individualization of the training classes, optimization of exercise load in accordance with functional abilities of students had a great influence on their interest to the training classes, on the forming of correct attitude to their health and healthy life style. By 89,7% more students began training regularly at the end of academic year 2007–2008. Average by 50,7% less students pointed out the reluctance and lack of interest to independent physical training. The key motive for physical education of fitness group students was training for the competition «Wellness Latino» which combined theoretical and practical parts.

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#### **THE FORMATION OF A TUTOR AS A SPECIALIST WITHIN THE PROCESS OF SCIENTIFIC-PEDAGOGICAL RESEARCH ACTIVITY WHILE STUDYING THE NATURAL SCIENCE**

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Modern society that is interested in its own development and the solution of numerous scientific, economic, and other problems, shows the demand for the upbringing of creative pedagogues, that would help it to solve those problems. Changes, that happen in modern society demand the correction of not only the content, but also methodological, pedagogical, and technological aspects of the tutor's training.

In this research we will speak about the preparation of the natural science faculties students of pedagogical higher educational institutions to their professional activity within their scientific-research work process. A committed comprehension of subjects and phenomena of our reality within the educational system that is carried out according to a plan is attributed to scientific research in pedagogy. In our work the natural science circle disciplines that are studied in pedagogical higher education institutions will be analysed. Natural science that is used by a man for the cognition of the world is being developed intensively nowadays. It differs much from separate special learnings by its integral view upon the processes and phenomena and gives us the ability to overcome the crisis of the modern knowledge system that can be observed in physics, biology, chemistry [6, P. 5]. The questions of classification and interaction of the natural sciences are still being discussed. The most common point of view is that physics, biology, and chemistry are the basic sciences [6, P. 14-15].

In the textbook «Modern concepts of natural science» the following categories are outlined: mathematics (chapter 2. Natural science and mathematics), physics (chapter 3. Scientific revolutions within the concept basics of physics), chemistry (chapter 5. Chemical concepts), geography (chapter 6. Conceptual content of the Earth sciences), biology (chapter 7. Biological conceptions), and physiology (chapter 8. Anthropological conceptions) [1, P. 3-6].

Nowadays a sufficient number of textbooks on ecology has emerged («Ecology» – V.I. Korobkin, L.V. Peredelskiy; «General ecology» – A.S. Stepanovskiy; «Ecology» – N.A. Brodskaya, O.G. Vorobiev, and others; «Ecology» – A.I. Adgirevich; «Ecology» – T.A. Akimova, V.V. Haskin and other textbooks). Almost all the textbooks claim that ecology as a science is based upon the studying the natural science disciplines, and that the questions of the combination of modern biosphere and technosphere, that has been created by men (the system «human-economy-biota-environment») are studied here.

The point of the studied question is the formation of ecological culture of the future tutor through natural science cognition within his scientific-research, scientific-pedagogic, and scientific-methodological activity. The ecological culture is an affirmation of the natural management principles and the skills to solve social-economical problems without the impact on the environment

and people's health in a man's mind and his activity [2, P. 34]. The condition of the formation of the ecological culture of the pedagogical higher education institutions students is the «ecologisation» of the natural circle disciplines. High ecological culture must become an important qualification criterion of the secondary school tutor.

Scientific-research work while studying natural science disciplines by students of pedagogical higher education institutes represents the study of the environment object within the process of studying chemistry, biogeography, physics, and geography. This is process of the basic qualities of eco-cultured personality of a future pedagogue formation. Such pedagogue is able to transform ecological values and realize the strategies and technologies of eco-pedagogic activity through natural science content and psychological-pedagogic and methodological knowledge [7, P. 158].

Scientific-pedagogical work of the pedagogic higher education institutions students is the process and the result of scientific activity that is aimed for the obtaining new social knowledge on the pattern, structure, mechanism of teaching and upbringing, theory and history of pedagogy, methods of the educative work organization, its content, principles, tools and organization forms [5, P. 208]. Scientific-research exploratory work in pedagogy, according to P.I. Pidkasistyi, is the securing of the organization of the searching creative activity of the studied within the solution of their new problems. Methods of scientific-methodological research are the methods, procedures, and operations of empiric and theoretic study of the reality. This system is defined by the initial researcher's conception, his ideas on the essence and the structure of the studied object, general methodological orientation, goals and problems of the researcher [5, P. 207].

Within the sphere of natural science nowadays a modern school needs flexible, mobile and competitive pedagogue. A secondary education institutions need teachers in the area of natural science disciplines that can:

- establish confidential relations with the students, that will help them to achieve positive results, motivate them for their future activity;
- influence the formation of students collective, creation of the environment favourable to their life and communication;
- analyse pedagogical situations, point out the main, significant for the selection and structur-

ing of their activities content, formulate education and training goals;

- form the integral knowledge system on the nature, society, human and the value approach to the environment within the students;
- develop creative abilities within the students their capabilities and inclinations in different types of socially-significant activity.

Also in order to master the mentioned skills a modern tutor must know:

- major legislative documents that concern the education system and regulate educational activity, subjects of the educative process' rights and duties;
- pattern of the education process and the education principles, its main directions and specific content of one natural science discipline;
- basics of the educational activity of a tutor as a class leader, methods of the revelation of leader, levels of the school self-government development, students' civility diagnostics;
- organization structure and scientific-methodological securing of the students' education;
- basics of the pedagogic innovation, modeling of the education systems and the conditions of their development [3, P. 67].

Mastering of these necessary skills and knowledge by the future tutor of natural science circle is promoted by deep study of the natural science content and the comprehension of scientific-pedagogical, scientific-methodological and scientific-research activity within the pedagogical institution of higher education.

The goal of the pedagogic institute is to transform a passive student, comprehensive absorbent of scientific information into the assiduous executor that solves standard problems, to train the specialist that can creatively obtain knowledge and who values not only the sum of knowledge, facts and comprehended disciplines, but also the development of the creative intelligence and flexible thinking. All that defines the intellectual potential of the society, the competitiveness of the country, and its place in the geopolitical space [4, P. 12].

Thus, the scientific-research work within the process of mastering natural science disciplines, scientific-pedagogic and scientific-methodological research work in the pedagogic institutions of higher education must provide the basics of the creative activity of the future pedagogue. At this stage of mastering this profession the students gain the ability to show their creative activity. And

this will serve a good platform for their creative pedagogic activity in future.

#### References

1. Conceptions of modern natural science / V.A. Kanke. Textbook for institutions of higher education. – Ed. 2. – M.: Logos, 2002. – 368 p.
2. Ecology teaching at school / A.V. Mironov. – M.: Vldos, 2004. – 220 p.
3. Innovative educational activity in technical institution of higher education / P.N. Osipov. Methodological manual for the system of retraining and qualification rising of the high school tutor. – Kazan: Shkola, 2007. – 224 p.
4. Preparation of students to their creative pedagogic activity / P.I. Pidkasistyi, N.A. Vorobieva. Learning-methodological manual. – M.: Pedagogic society of Russia, 2007. – 192 p.
5. Dictionary-reference book on pedagogy / Author team of V.A. Mizherikov; under general edition of P.I. Pidkasistyi. – M.: Sfera, 2004. – 448 p.
6. The basics of modern natural science and ecology / S.S. Timofeyeva, S.A. Medvedeva, E.Y. Larionova. Series «Textbooks, learning manuals». – Rostov-on-Don: Fenix, 2004. – 384 p.
7. Formation of the ecological culture within the studying of natural science by the students of the pedagogic institutions of higher education / S.M. Fairushina. Monography. – Kazan: Shkola, 2008. – 172 p.

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