FORMATION OF TEACHERS' COMPETENCE IN ACCORDANCE WITH INTERNATIONAL PROGRAMS

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Abstract. The article highlights the importance of the modern field of professional activity of the individual, which is changing dynamically, which is certainly a leading factor in the development of modern vocational education. The competent approach reflects the knowledge-oriented attitude of professionals towards the formation of their ability and readiness to solve professional problems effectively and independently in a variety of situations. The article highlights the importance of shaping the competencies (general cultural and professional) of future professionals as reflected in the educational standards of higher education. The results of the experiment are presented, where the knowledge of students was assessed on the topics of the structure and life of plants and animals, bacteria, humans, the taxonomy of plants and animals, the evolution of the organic world, ecology, cytology and genetics, the results of which made it possible to assess the understanding and application of biological knowledge in practice: when growing plants, at home, when compiling a human diet, in the protection of nature.

Keywords: competence, international evaluation system, international research, technologies of pedagogical measurements, natural science, professional competence of students.

INTRODUCTION

The effectiveness of education modernization largely depends on the degree of use of objective data obtained in the framework of monitoring studies and assessment technologies. The huge array of information received allows us to correlate the planned and achieved results, to identify the most significant problems that need to be addressed. The results of such studies become guidelines

for adjusting the directions of ongoing reforms and forecasting the state of education for the coming years. The high level of knowledge of students in the field of biology, natural science is considered by many countries as an indicator of the country's competitiveness in the field of fundamental sciences and the latest technologies.

MATERIALS AND METHODS.

The use of the latest technologies of pedagogical measurements, developed by the world's leading experts in the field of assessing the quality of educational achievements, allows, with the greatest economic effect, to create a system for monitoring the quality of education at the level of world standards. The international PISA study aims to assess whether students who have received general secondary education have the knowledge and skills necessary for full functioning in society. This study tests a deep understanding of the essence of things, cause-and-effect relationships, universal educational actions that form the basis of the ability to learn: the skills of solving creative problems and the skills of searching, analyzing and interpreting information. The learners are drawn into the problems they face in real life. They perform tasks that require complex thinking, planning and evaluation from them, solve problems, make decisions, argue, etc. The main objective of the PISA study is to analyze real results obtained in the framework of objective measurements based on tools that reflect world priorities in the field of education, and extract from them scientifically grounded and constructive conclusions for educational policy.

THE MAIN PART.

The study of educational achievements of students is carried out in three main areas: "reading literacy", "mathematical literacy" and "natural science literacy", in which special attention is paid to the assessment of students' mastery of general educational and intellectual skills.

The conducted research is devoted to the analysis of the results of the international test in questions related to the section "biology".

Analysis of the relevant literature allowed us to conclude that the biological part of the tests includes such sections as diversity and organization, structure of living nature; vital processes; systems providing vital functions; genetic continuity and variety of interactions between living organisms; human biology and health. During the experiment, we assessed the students' knowledge on topics about the structure and life of plants and animals, bacteria, humans, the taxonomy of plants and animals, the evolution of the organic world, ecology, cytology and genetics. Much attention in the test was paid to human biology and health. The main purpose of the study was monitoring, the results of which made it possible to assess the understanding and application of biological knowledge in practice: when growing plants, in everyday life, when compiling a human diet, in the protection of nature. The students coped best with the tasks in the "Plants" section. We have mastered well the material about the functions of chloroplasts in the plant cell, about the structure of plants, about the method for determining the age of a tree. In the section "Animals", good answers were received to questions about the origin of animals and about the processes occurring in the body of an animal during hibernation. The material about the signs of insects, about the difference between warm-blooded animals and cold-blooded ones, according to the classification of animals, has been learned worse. A large number of correct answers were received to practical questions: understanding the reasons for including fruits and vegetables in the diet of a healthy person; knowledge of changes in heart rate and respiration during exercise; an explanation of why climbers use oxygen equipment, why it is cooler on a hot day in light clothing; knowledge about vitamins, about the location of organs in the human body.

The results obtained are explained by the fact that students have the knowledge necessary to answer these questions. They could use knowledge about the structure of mammals. However, the questions that required special knowledge to answer caused difficulties. A large number of incorrect answers were given to questions about the role of saliva in digestion, which foods provide the body with

the necessary nutrients? Where does energy come from in food? From general biological questions, the students coped well with the tasks on genetics, human ecology, food relations in nature; about the consequences of human activity, about the cell. The worst deal with environmental issues. The lowest among all biological tasks results on questions in which the ability to analyze and generalize the results of the experiment was tested: choose an experiment scheme that corresponds to the hypothesis tested in the experiment; plan the study. This is due to the fact that in the study of natural science not much attention is paid to this type of activity. Comparison of the results of the tasks of biological content shows that when 80% of the tasks are completed, students have results equal to the average international result. However, there are tasks for which poor results were obtained. They are mainly aimed at checking non-program material. These include tasks on the study of the pulse, on the choice of products that provide us with the necessary nutrients, on the function of erythrocytes, etc. Thus, although the results in biology are quite high in comparison with the students' performance of the entire test, the data obtained can be used to improve biological education, in which much attention is paid to factual material, research takes little place. Particular attention should be paid to misconceptions that a significant number of students have after studying the material. Understanding the natural sciences and technology for students in the life of modern society plays a significant role, giving them the opportunity to participate in the establishment of a public strategy (course, policy) that is compared with the natural sciences and technologies that affect their lives. Therefore, the study of natural science literacy of 15-year-old students in the framework of the PISA study is unique. Natural science literacy in the PISA study refers to the ability to use natural science knowledge, identify problems and draw informed conclusions necessary to understand the world around us and the changes that human activities bring to it, and to make appropriate decisions. Natural science literacy includes the following components: “general subject” skills formed within

the framework of natural science subjects, natural science concepts and situations in which natural science knowledge is used.

The main attention is paid to testing the ability to distinguish from the proposed questions those to which the natural sciences can give an answer, to draw scientifically sound conclusions based on the proposed information. Summarizing the above, the following main provisions can be formulated:

- effective formation of students' professional competencies is a complex and multicomponent process, which includes a number of interrelated and mutually influencing elements. Understanding the integrity and unity of these elements, while identifying cause-and-effect relationships will help increase the efficiency of planning and organizing the educational process of the university (drawing up working curricula, basic educational programs, work programs of disciplines, etc.);

- consideration of the components of professional competencies as a field of knowledge of the corresponding subject area makes it possible to model the ontology of a given classes of objects, their properties and rules of behavior. The process of assessing the level of formation of professional competencies can be represented as a multi-element task of partially weakly formalized elements. If for the current assessment of knowledge and activities of professional competence, it is possible to use general methods of assessing academic performance (theoretical questions, tests, control tasks, performance and defense of creative work), then for assessing personal competence it is quite difficult to find a single appropriate scale of expression. This translates the general assessment of competencies into the field of fuzzy sets, where relative concepts (high, medium, low, and others) can be used to describe the properties of poorly formalized elements. In this case, setting an accurate assessment in points is very difficult. The final criterion for the level of formation of most professional competencies is the final qualification work (thesis), where the student can maximally realize all the knowledge, skills and abilities acquired during the years of study.

CONCLUSION.

In general, we can conclude that the problem of quality control of the formation of professional competencies in students can be solved only from the standpoint of an integrated approach, covering all aspects of the quality of the educational process in the university. And this, in turn, will contribute to the understanding of natural sciences and technology, enabling the use of the knowledge gained in the natural sciences with technologies influencing in setting public strategy.

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