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REQUIREMENTS FOR MODERN POSTNOCLASSIC PHYSICS TEXTBOOKS

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Abstract
Taking the teaching of physics to a new level in general secondary education schools of continuing education in today's informed society is an urgent problem in the field of Education. This article examines the problems of teaching students of general secondary education schools to modern thinking in physics, bringing the teaching to a level that meets the requirements of the postnoclassical educational environment. Also, what modern physics textbooks are like, current physics textbooks in our country are compared with textbooks in developed countries of the world.

Keywords: textbook, postnoclassic physics, physics, independent thinking, thought styles, synergetics, classical, informed society, quantum, relativistic.

Introduction

In schools of general secondary education of continuing education, we can historically divide the teaching of physics into four stages[1]. Today, each of these stages plays an important role in the scientific knowledge of physics. Each stage is formed on the basis of its own predecessor and forms certain thinking styles at the previous stage:

1. The origin of physics is more focused on determining the relationship and relationship of physical and philosophical ideas about nature, which undoubtedly plays an important role in the formation of scientific thinking.
2. The emergence of Newton's laws, that is, the stage of "classical physics" (XVII-XVIII centuries). The purpose of all scientific research carried out was to form a general, logical and complete picture of the universe on the basis of the laws of "classical physics".
3. The stage of quantum-relativistic physics (late XIX th century-mid-XX-th century). At this stage, in the history of mankind, a radical turn was made in

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svilization. Several specific theoretical descriptions of physical phenomena that differ from each other and the connection was checked in physical experiments. As a result, with the help of quantum-relativistic physics, a new physical element of the universe was formed.

4. At the present stage of the development of Science in today's informed society, the fields of Physical Research have radically changed and covered a very wide range of fields(nuclear research, nanotechnology, materials science, etc. The conduct of these physical scientific studies, expressing the fact that scientific knowledge has reached the level of a new revolution, calls it postnoclassic physics in the modern scientific and pedagogical language. Features of the current phase of the postnoclassic physics environment include:

1) a number of Exact and Natural Sciences the interconnection of various knowledge studied in Mathematics, Computer Science, Chemistry, Biology and other sciences and the conduct of research that implies the existence of interdisciplinary continuity are the most important criteria of the current postnoclassic environment; this naturally applies to the laws generalizing all physical phenomena, as well as the physical properties of

2) a comprehensive study of the place of zamoavian science(specifically physics) in the transition from an industrialized society to an informed society and in its global development [2].

A vivid demonstration of the interdisciplinary approach in schools of general secondary education of continuing education is aimed at the organization of synergetics education, which originated in the natural sciences, including physics. Thanks to this, it studies the most general laws of the development of an informed society and, most importantly, the self-control of complex physical systems. In today's modern language of science, we can understand the word synergetics (Greek) in such a sense as “joint activity”, that is, the study of the occurrence of a process caused by several different factors, for example, there are several reasons for the occurrence of a mechsanic action, and each of these does not lead to the implementation of an action separately [3]. The development of synergetics leads to profound changes in approaches to the study of the physical comfort of the Universe [4]. Synergistic educational ideas are also effective for the formation of a modern-scientific way of thinking[5]. In our opinion, the synergistic development of complex systems in the postnoclastic

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environment can also be useful in the formation of the creative activity of human thinking. In general, synergetics and creative thought processes have common features. Through these, we can create and improve creative innovations as a result of creative thinking, and through synergistic views, we can form the true physical comfort of the universe around us. Understanding the dependence of the concepts of creative thinking and synergistic education requires that the global process inherent in the current stage of development of physics radically reshapes thinking, renounces its dual views on the physical landscape of the universe, and forms synergistic views of the universe in a postnoclastic environment, leading to the abandonment of classical influences [6]. In today's informed society, synergistic thinking is manifested in the process of identifying relationships between phenomena of different nature, creating various scientific hypotheses about the causes of their occurrence[6]. In these cases, scientific knowledge begins not only with the analysis of a physical phenomenon, but also with the understanding of each element of the physical phenomenon taking place. Of course, in this it is not required to realize to the fundamental importance of a physical phenomenon, to come up with its alternatives, and it is enough to realize some of its inherent properties. In Niels Bohr's interpretation this approach is to understand the physical comfort of the Universe [2]. But the accumulation of empirical and theoretical results obtained in experiments in today's informed society, the increasing number of problems and contradictions in modern scientific theories and concepts, the way of thinking of students of general secondary education schools, assumes a radical change in their new vision of the world around us. This forces to prioritize the importance of fundamental research that will bring about a new scientific revolution related to the vision of modern scientific problems.

The need to form a new and scientific worldview that is consistent with the latest achievements of fundamental science is increasing day by day from those who are increasingly educated in several branches of Science, in particular IT, digital economy, several branches of industry, modern exaggerated society. A further increase in attention to the natural and Exact Sciences not only ensures the development of Science and technology, but also forms a modern specific type of scientific thinking in the minds of students, while its deficiency is sharply felt in modern society. The formation of a new modern (synergistic) way of thinking

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in students of schools of general secondary education of continuing education is an urgent issue in our country in the transition to the era of the late Renaissance. In physics, as in all subjects, general secondary education is the main goal of forming the thinking of schoolchildren. In fact, we can say that in students, being able to understand, analyze physical phenomena and predict phenomena in advance is the key to the scientific development of society. Summarizing all the above considerations, we can ask the question: "What should be the structural structure of textbooks, textbooks on physics in general secondary schools of continuing education?"Today, the current educational textbooks and programs in our republic look conservative. In accordance with this program, the physics course of general secondary education schools of continuing education is based on the classical mechanics of the development of Science Technology. But today, physics education in several developed countries of the world is based on the study of the ideas of the quantum-relativistic stage. At the same time, the ideas and methods that accompany the synergistic thinking method of physics education in the general secondary education schools of our country, discussed above, are practically completely absent in the physics course. Therefore, the methodological system of studying physics in the schools of general Secondary Education adopted at the moment creates minimal conditions for the formation of a modern way of thinking in the training of specialist personnel that meet the requirements of the time. The crisis of the modern educational system, a component of the global revolution of the early 21st century, is largely due to the lack of comprehensive education of today. As a result of this, during the transition from an industrialized society to an informed society, the shortage of Personnel, which can give a worthy answer in solving the problems of the growing environmental crisis, energy problems and the digital economy, is increasing day by day. In an informed society today, we cannot cover the complexity of problems, we must understand the connection between techniques and phenomena that exist in different areas of information. Taking into account the above considerations, the issue of radical reform of the public education system of our president on 03.02.2022 [Resolution No. PQ, F-22], in particular the creation of new textbooks, tutorials and new educational programs based on advanced foreign experiences in general secondary education schools on the basis of the requirements of the Times. [8].

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The issue of the creation of such textbooks and programs as a result of the development of pedagogical theories, in the 1980, the need to coordinate with the basic requirements of postnoclassic science was presented to the scientific public. It was from these years that, on the basis of the laws of classical mechanics, it was felt that physics in general secondary schools was lagging behind the requirements of the Times, and the need for a transition to postnoclastic science began to increase. [5]. This was originally presented in the implementation of the transition A.V.Khutorskoy, D.Sh Shadiyev, N.M.Were concepts and programs presented by scientists such as the shakhmayevs. These concepts rely on the following in revealing the essence of Physical Science, in the development of the competence of physical knowledge, in the development of modern ways of thinking of students of general secondary education schools:

- development of education and creativity of students in realizing the modern physical landscape of the universe;

-their cognitive activity, the ability to acquire independent knowledge, the formation of a modern natural-scientific worldview. When creating modern physics textbooks and programs, it is advisable to present today's physical discoveries and achievements, in particular, knowledge of advanced areas of science such as quantum physics, relativistic physics, nanotechnology, in graduating class materials with a clear goal, and not in different parts of the physics course of general secondary schools. Also, general secondary education schools of continuing education can be from major reforms in the educational system, creating alternatives to current physics textbooks in accordance with the requirements of the postnoclassic environment.

The system of teaching modern physics in schools of general secondary education of continuing education should include:

- a clear and completed goal orientation of teaching physics;
- the ability of teachers and students of general secondary education schools to choose alternatives to textbooks;
- the formation of students abilities to be able to work independently, accordingly, give tasks such as home experiences in the textbook;
- organization and implementation of independent laboratory work during the daily activities of students;

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- using modern information technologies, conducting virtual laboratories and comparing the results obtained in them with the current one;

The implementation of these approaches in the study of physics, the organization of the educational process, is its main task in the development of alternatives to physics textbooks. The basic principles on which such a postnoclastic environment should become the basis for the creation of modern physics textbooks, according to the author, are as follows:

1. The textbook should reflect the modern natural-scientific comfort of the world, in general, form natural-scientific rational thinking and ideas about the surrounding world, that is, give a wide range of fundamental knowledge, in which the interdisciplinary continuity between mathematics, biology, geography and computer science should be strictly observed.
2. In the textbook-extracurricular home experiments should be given, as well as separating the presented topics and tasks into two parts (for those who study physics at the base level and for those who study deepening).
3. In the teaching of modern physics, it is necessary to comply with the general didactic principles of teaching and have its own characteristics, which first of all require the creation and use of a high-quality textbook.
4. In the presented educational material, physical knowledge should be under the principle of boorish, in the generalizing nature, depending on the ODI to complex.

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