

# THE PROBLEMS OF PREPARING STUDENTS FOR THE USE OF SCHOOL PHYSICAL EXPERIMENT IN THE CONTEXT OF SPECIALIZED EDUCATION AT SECONDARY SCHOOLS

Atoeva Mehriniso Farkhodovna

Associate Professor of the Department of Physics, Bukhara State University, Bukhara, UZBEKISTAN

## ABSTRACT

This article describes some of the problems of preparing students for the use of a school physical experiment in the context of specialized education in secondary school. These theoretical and practical ideas can be used by teachers in teaching the subject of physics so that the students will get interested in physics. It is recommended as a practical and methodological indication for young teachers in organizing students' independent work in groups and individually, using modern information and pedagogical technologies in the educational process.

**Keywords:** Trend, methodology, information technology, aspects, physical experiments, educational process, material technical base, educational system, vocational training, implementation, educational physical experiment, software, experimental training, educational process, learning efficiency, practical skills.

## INTRODUCTION

Today, an urgent methodological task is the problem of using various means of an educational physical experiment in the educational process. The global informatization of society, the transition to new information technologies, the development and implementation of technical, educational and software-methodological support for informatization of education led to the emergence and widespread use of the concept of “new information technologies of learning” (NITL) in pedagogical and methodological science.

## Materials and Methods

An important aspect of the problem of using the school physics experiment (SFE) in the educational process is now becoming the renewal of the material and technical base of the school physics room. Two major trends can be traced in the development of modern educational instrumentation. One of them is a block-thematic approach in the design and development of educational equipment, in accordance with which the equipment is developed in the form of thematic sets, the individual elements and blocks of which make it possible to carry out experiments at all levels of high school education. The second trend is the use of digital measuring instruments and computerized measuring systems in combination with classical experimental means.

An important trend in the modernization of the education system is the modeling and introduction of new educational technologies into the educational process. And since the meaningful parameters of the entire educational system, the possibilities of its functioning and development are modeled by the structure of pedagogical education, the use of advanced pedagogical technologies in the process of professional training of future teachers affects the quality of the educational process implemented within the entire educational system.

And since in modern society there is a social demand for the profiling of a school, it is necessary to dwell in more detail on the very concept of "profile education".

There are a number of studies devoted to the problems of differentiated education, including work on specialized training. Profile training is considered the most widespread and accessible form of external differentiation. There are various approaches to defining the directions of specialized training. One of the approaches is related to the differentiation of students' abilities. Another approach to defining the directions of specialized education may be based on the classification of sciences. It is also possible to select profiles based on the interests of students.

Classification of sciences as well as the structure of students' abilities and the focus of their interests.

There are tendencies that distinguish three areas of study: natural science, technical and humanitarian, depending on the object of consideration. The natural science direction includes two profiles: physics and mathematics and biology and chemistry. In addition, the so-called general profile of learning is distinguished for those students who have not developed certain interests and abilities and for whom all subjects are equally interesting. The allocation of a relatively small number of training profiles provides the main level of differentiation. The next level is realized through elective courses or extracurricular activities, which, on the one hand, will deepen the knowledge of students in the main subjects and acquaint them with some special issues of the chosen direction, and on the other hand, will make it possible to expand the knowledge of students in the subjects studied in within the selected profile at the usual level.

It should be noted that in the "Concept of specialized education at the senior level of general education", natural-mathematical, socio-economic, humanitarian, technological profiles and universal (non-core) education are given as possible training profiles. In the national basic curriculum, physical and mathematical, physical and chemical, chemical and biological, biological and geographical, socioeconomic, social and humanitarian, philological, information technology, agrotechnical, industrial and technical, artistic and aesthetic and universal training profiles are considered.

### **Results and Discussions**

In the future, when discussing the problem of preparing students in the field of SFE, we will consider the humanitarian profile, where physics is not included in the number of specialized general education subjects, the general education profile, where physics, along with all other subjects, is studied as a basic general education subject, and physics and mathematics. a profile in which the study of this subject is carried out at the highest level. There are various approaches to the problem of selecting and structuring the content of school education in physics. Arguing that in most of the various approaches to solving the above problem, reliance on empirical solutions based on experience, intuition, expert assessments prevails, that in order to solve modern methodological problems, the level of theoretical validity should be higher and sets itself the task of finding a constructive way to determine the content of the course physics for high school, depending on the educational goal of learning. The goal of teaching physics determines the content of physics as a subject, the specific components of which are formed using a method developed on the basis of information and set-theoretical approaches.

Undoubtedly, the proposed approach makes it possible to increase the level of theoretical validity of the selection of the content of a school physics course. However, within the framework of this approach, the definition of the content of a physics curriculum is made

dependent only on the educational goal of learning, without taking into account the dominant global goals of the all-round development of the personality that dominate this goal. In addition, the considered approach does not provide for the definition of the procedural component of the model of the process of designing physics courses for classes of various profiles.

The model of the academic subject "physics" includes content and procedural blocks; the first includes basic subject and auxiliary knowledge, the second - methods of activity and forms of organization of the educational process.

The sources of the formation of the content of the academic subject include social experience (subject knowledge and methods of activity), knowledge about the learning process, knowledge about the patterns of assimilation; to the factors affecting the content of the academic subject - the goals of learning, the cognitive capabilities of students, their abilities and interests. The principles indicate the general direction of activity in the formation of the content of education: these include general principles of the formation of the content of education, didactic principles of constructing the content of a school subject, and particular methodological ones; certain criteria for the selection of educational material and its structuring correspond to the principles, indicating the advisability of including this or that material in the physics course.

According to the socio-personal approach adopted in modern didactics, the composition of the learning objectives includes: assimilation of the experience of previous generations by a person, the development of functional mechanisms of the psyche, the formation of generalized typological personality traits, the development of positive individual personality traits.

## CONCLUSION

And so, we can conclude that in order to prepare students for the use of a school physical experiment in the context of specialized education in secondary school, it is necessary to implement in the course of the lesson the method of a variable combination of a full-scale demonstration experiment and means of new information technologies.

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